ANNUAL REPORT

OF THE

BOARD

OF

ANAL COMMISSIONERS

OF

PENNSYLVANIA:

WITH

ACCOMPANYING DOCUMENTS.

Printed by order of the House of Representatives, Jan. 17, 1842.

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1842

MESSAGE FROM THE GOVERNOR,

TRANSMITTING THE ANNUAL REPORT OF THE

BOARD OF CANAL COMMISSIONERS.

To the Senate and House of Representatives of the Commonwealth of Pennsylvania:

GENTLEMEN:—I have received from the Board of Canal Commissioners, their annual report and accompanying documents, giving a view of the works of Internal Improvement, and the various transactions connected with that subject, for the year ending on the thirtieth day of November last, which are herewith transmitted.

Upon this important subject I have nothing now to add in addition to the views expressed in my annual message. It is a subject of great magnitude, and of the deepest interest, and is recommended to the early and special consideration of the General Assembly.

DAVID R. PORTER.

EXECUTIVE CHAMBER,
January 17*th*, 1842.

REPORT

OF THE

CANAL COMMISSIONERS.

CANAL COMMISSIONERS' ROOM,
Harrisburg, January 15, 1842.

His Excellency DAVID R. PORTER,
Governor of Pennsylvania:

SIR:—By order of the Board of Canal Commissioners, I have the honor of transmitting to you their Annual Report, for the year ending 30th November, 1841, together with the accompanying documents.

I have the honor to be,
Very respectfully,
Your most obedient servant,
EDW. B. HUBLEY,
President.

THE CANAL COMMISSIONERS respectfully submit the following Report on the condition of the several Lines of Canal and Railroad in Pennsylvania, under their charge:

The Improvements constructed at the public expense, consist of the

	MILES.
Delaware Division—extending from Bristol to Easton,	59¾
Columbia Railroad—extending from Broad and Vine streets, in Philadelphia, to the basin at Columbia,	82
Eastern Division—extending from Columbia to the junction of the Susquehanna and Juniata Divisions on Duncan's Island,	44½
Juniata Division—extending from the junction at Duncan's Island, to the basin at Hollidaysburg,	127½
Portage Railroad—extending from Hollidaysburg to Johnstown,	36

	MILES.
Western Division—extending from Johnstown to the Monongahela river, at Pittsburg,	104½
Beaver Division—extending from the Ohio river, at the mouth of Beaver, to the head of slack water on the Shenango,	30¾
Erie Extension—extending from the Beaver Division, to three miles above the town of Greenville,	46
French Creek Feeder—extending from the head of navigation, in the pool of Bemus' Dam, three miles above Meadville, to the junction of the Erie Extension, including Conneaut Lake,	27
Franklin Line—extending from the Feeder Aqueduct, seven miles below Meadville, to Franklin, on the Allegheny river,	22¼
Susquehanna Division—extending from the junction at Duncan's Island to Northumberland,	39
West Branch Division—extending from Northumberland to Farrandsville,	73
North Branch Division—extending from Northumberland to Lackawanna,	72¼
Lewisburg Side Cut,	⅝
Bald Eagle Side Cut,	3⅝
Lackawanna Feeder,	¼
Allegheny Branch of the Western Division, in Allegheny City,	¾
Feeder at Johnstown,	1½
Feeder at the mouth of Raystown Branch on Juniata,	1
Total,	772¼

Making the whole number of miles of Canal and Railroad, completed by the Commonwealth, seven hundred and seventy-two and a quarter.

The unfinished lines of Canal in progress consist of the

	MILES.
North Branch Division—from Lackawanna to Athens,	90
Erie Extension—from three miles above Greenville to harbor of Erie,	59½
Wiconisco Canal—from the mouth of Wiconisco Creek to Duncan's Island,	12¼
Whole number of miles in progress,	161¾
Canals and Railroads finished,	772¼
Total,	934

Making in all, nine hundred and thirty-four miles of Canal and Railroad completed and in progress.

DELAWARE DIVISION.

On this line of the public improvements, the repairs during the year have been unusually heavy and expensive. The unprecedentedly high freshet in the Lehigh and the Delaware, in January last, did great damage to the works, for a distance of thirty-seven miles. At Easton the basin was entirely carried out, and the abutment of the dam, the locks and weigh-lock materially injured, and the Collector's office swept off. The piers of the aqueduct over Tinicum creek were undermined, and the trunk destroyed. For miles along the bluff sections, the towing path was cut down, and in many places the prism of the Canal so much filled up with deposite as to leave no trace of the former improvement. At New Hope, the wheels for feeding the lower section of the line were swept off by the flood.

Measures were immediately taken after the passage, by the Legislature, of the resolution of the 11th of February last, making a partial appropriation to the object, to commence the requisite repairs, and as soon as practicable, the work, divided into convenient sections, was publicly given out by contract. Through the active exertions of the officers, and the energy and perseverance of the contractors, the repairs were so far completed as to admit of the passage of boats on the 29th of July.

Subsequent to the flood of January, three breaches occurred at the point where Neilly's creek enters the Canal: the first on the 19th of June, the second on the 19th of July, and the third on the 10th of August. These breaches were promptly repaired, and the navigation of the whole line resumed on the 21st of August, since which time no interruption has occurred. To prevent the recurrence of similar disasters at this place, it is proposed, during the winter, to erect a set of guard gates facing the stream, and then enlarging the waste weir immediately in front.

In addition to those rendered necessary by freshets, the following repairs have been completed during the year, viz: the dam at Easton; the wharf and tide lock at Bristol; the combined locks at New Hope; locks Nos. 10, 11, 12, 13 and 14; Hough's, Knowlese and Lumberville aqueducts, and the waste weirs above Black's Eddy, at Lumberville, Johnston's and New Hope; two bridges have been re-built, eight re-planked, and the rest generally repaired.

Notwithstanding the long interruption to the navigation of this line, the tolls, compared with the corresponding period of 1840, stand as follows:

To 31st October, 1840,	$97,070 22
To 31st October, 1841,	59,654 88
Showing a decrease in 1841, of	$37,415 34

with an interruption to the navigation of about six months' continuance.

The amount drawn from the Treasury on this division, during the fiscal year, for repairs, including the amount paid on debts due previous to the 1st of November last, is $115,834 25. Forty-six thousand and sixty-three dollars and thirty-four cents of which was drawn from the Treasury proper, in pursuance of the resolution of 11th February, 1841; leaving $23,936 66, the balance of the appropriation of $70,000 authorized by that resolution, still unexpended in the Treasury. Deducting the above balance on hand from the present indebtedness of the line, and there is still due the sum of $102,144. The amount estimated by the Engineer, in his report to the Board, to repair the damage occasioned by the January flood, was $150,000. The actual cost is $148,051 41.

COLUMBIA RAILROAD.

REPAIR DEPARTMENT.

The extensive repairs rendered necessary by the defects in the original construction of the road, and by the decay of perishable materials, have been nearly completed, so that the amount required for that purpose the current year, will be greatly reduced. The tracks are now in good order, and the delay and danger herctofore experienced from the spreading of the rails, have been obviated by placing the cross-ties nearer together. A number of these additional ties have been put in during the past season.

The bridges have been much strengthened and improved, and are generally in good condition. The Big Conestoga, Coatesville and Schuylkill bridges, are the only ones that will need repair the coming season.

The stationary engine formerly used at the Columbia inclined plane, has been removed to, and fitted up, in the building on the south side of the road at the head of the Schuylkill plane. This addition to the power at that important point, will add to the facilities of transportation, by preventing any delay that might be occasioned by the breaking or repairing of the engine on the north side.

In pursuance of the authority vested in the Board by the resolution of the General Assembly of the 7th of June, 1840, entitled a "Resolution authorizing the payment of the clams of Jackson M'Fadden, and for other purposes," the Superintendent of the line was directed to sell at public auction, the piece of land belonging to the Commonwealth at the head of the Columbia inclined plane, together with the buildings thereon erected, with the exception of the depot. This direction has been complied with, and the property sold. After the passage of the aforesaid resolution, it was discovered that the materials of which the depot was constructed, were the property of the contractor for building the new depot in Columbia, and they were consequently delivered up to him.

The re-laying of the north track, from its intersection with the West Chester railroad to White Hall, has been completed. This improvement has been executed in a substantial manner, and has proved

of great advantage in accelerating and adding to the safety of transportation upon the road. That portion of the same track between White Hall and the head of the plane, still remains unfit for use. Much inconvenience must necessarily arise from this cause. Its renewal will, however, depend upon the future action of the Legislature, on the question of constructing a road to avoid the plane.

In addition to the unavailable balance of the appropriation of last year, the sum of $1,089 00, will be required to pay debs due contractors for re-laying of the North track.

By order of the Board, the Supervisor sold at public auction, all the old flat bar iron taken from the renewed portion of the track.—The contractors for the work to whom the Commonwealth was indebted, were the principal purchasers. It was, therefore, considered a mere act of justice to take receipts on their estimates for the amounts purchased by them respectively. As soon as the appropriation of last session to the renewal of the track is made available, the officer having charge of the line, will be enabled to account for the whole of the proceeds of the sale, in the manner required by existing regulations.

The amount drawn from the Treasury for old debts and repairs, for the year ending November 30th, 1841, is $132,029 97, including the amount paid on contracts for renewing the North track from the 22d mile stone to White Hall.

The amount of indebtedness for repairs, renewal of North track, &c., is $100,207 30.

MOTIVE POWER DEPARTMENT.

The operations of this department of the Columbia Railroad, have been conducted with satisfaction to the business and travelling portions of the community. Notwithstanding the revenue from Motive Power has suffered from the same causes which have operated upon other portions of the main line, yet the receipts from that source exhibit a very gratifying increase over the expenditures for the year.

The present Superintendent took charge of the Department on the 1st of December, 1840, and his accounts are made up to the 30th of November, 1841. By these and by the Collectors' returns, it appears that the receipts and expenditures for that period were as follows:

Motive Power tolls collected,	$220,853 93
Expenditures,	198,619 50
Excess of receipts over expenditures,	$22,234 43

The Superintendent states in his Report that the value of the stock on hand on the 1st of December, 1841, exceeds that on hand on the 1st of December, 1840, by the sum of $24,469; which, if added to the excess of receipts over expenditures, will exhibit a profit of $51,022 51.

The improvements which have been made in conducting the business of the road, and the result of others which it is contemplated to make the ensuing year, will tend hereafter to produce a considerable reduetion in the expenses. The cost of maintaining the Motive Power from the 1st of Deeember, 1841, to the 30th of November, 1842, is estimated as follows:

Master Machinist, Clerk and Mechanies at Parkesburg shop,	$15,000
Materials for repairing Engines,	15,000
Mechanies at repair shop at Columbia,	1,300
" " Schuylkill plane,	900
Despatcher and laborers at Columbia,	1,300
" " Attachers, engineer and firemen of Stationary Engine, and laborers at Schuylkill plane,	6,500
Despatcher, engineers, firemen and laborers on Schuylkill level,	3,500
Despatcher at Lancaster, and State Agents for burden trains,	1,500
State Agents on passenger trains,	4,230
Engineers of locomotive engines,	14,000
Firemen do. do.	9,000
Watermen,	6,205
Sawing wood,	8,760
Water Companies and individuals for water,	1,225
Coal,	10,000
Wood,	37,500
Oil,	6,200
Repairs of engines done at manufacturing establishments,	8,000
Miscellaneous, stationary and printing,	1,000
Horse power on Sehuylkill level, at Sehuylkill plane, and at Columbia,	6,500
Superintendent, Clerk, and offiee rent,	2,500
Rope for Sehuylkill plane,	4,000
Total estimated cost,	$164,120

It is eonfidently expected that the Motive Power tolls, during the ensuing year, will, in addition to defraying the eurrent expenses, entirely diseharge all present liabilities. No appropriation for that purpose is therefore required.

EASTERN DIVISION.

The navigation on this line has not been interrupted sinee the Canal was opened in the Spring, except by a breach which took plaee about four miles below Harrisburg, on the 5th of August last. This breach was promptly repaired. Considerable inconvenience was experieneed for a few days during the season, owing to a difficulty in keeping up a sufficient supply of water in consequence of the injury sustained by the dam at Clark's Ferry by ice freshets. A coffer dam was thrown nearly across the river, which enabled the officer in charge of that portion of the division, to keep up a suffieient head of water for all the purposes of navigation.

The Swatara Feeder dam has undergone thorough repair, and is reported to be in a condition to compare, in point of finish and tightness, with any other dam in the country. The other repairs have been of the usual ordinary character, incident to the decay of the perishable materials of which the works are constructed, and to the abrasion of the banks.

The principal repairs required during the present year will be to the Clark's Creek, Swatara, and Conewago Aqueducts. The Locks generally will require slight repairs.

The amount drawn from the Treasury during the year 1841, for old debts and repairs, is $35,224 91.

Debts due for repairs on the 30th November, 1841, on this division, $25,921 67.

JUNIATA DIVISION.

But little interruption has been experienced on this line from extraordinary causes. The only injury sustained by the ice freshets, consisted in a break in the embankment of a part of the dam at Shaver's creek. The line was opened for navigation on the 2d of April, and has been maintained throughout the year without a breach of any importance, and with fewer interruptions than for any other season since the opening of the Canal. This, no doubt, has been the result of the careful attention of the officers, and the system adopted by them for strengthening the weak points in the banks of the Canal. The difficulty heretofore experienced in obtaining a full supply of water in the upper levels, for the passage of boats loaded to the originally intended capacity of the division, has been again severely felt during the dry season of the past year. The Board have heretofore expressed their opinion, that this difficulty, so detrimental to a free and uninterrupted transportation upon the main line, from the east to the west, will be entirely obviated by the completion of the Reservoirs on the Allegheny mountain, now in the course of construction, and the experience of past years has firmly established the correctness of that opinion. Without this additional source of supply, the line from Hollidaysburg to Water Street, in the summer months, must continue, as in years past, to afford a depth of water only capable of passing boats with half loads, thereby adding to the expense of transportation, and materially impairing the usefulness of our improvements, when compared with those of other States.

This Division has undergone, in the past three years, considerable repairs, and the amount required for that purpose, for the current year, will be comparatively small.

The Board would call the attention of the Legislature to the subject of re-building the out-let lock at Lewistown. This lock connects the Kishacoquillas creek with the canal, and has become so much decayed, as to be almost entirely unfit for use. The owners of the warehouses on the creek, in which are annually deposited the produce of that rich agricultural region, are consequently deprived of their former access to the canal through this lock. The officers may perhaps

be able to repair it sufficiently to pass the spring trade; but after that time it will, from necessity, be again closed. The estimated cost of re-building it upon the composite plan, is $7,500; if built with stone laid in cement, the cost would be $10,000.

The Board have declined directing the re-building of this lock, because it involved a larger expenditure of funds than could be spared from other objects of greater importance. It does not impede the navigation when out of repair, and the Board entertain very serious doubts, whether it ever ought to be re-built at the public expense. If the Legislature should think otherwise, an appropriation of $7,500 will be required for that purpose.

The amount drawn from the Treasury for old debts and repairs for the year ending November 30th, 1841, is $52,207 88.

Debts due for repairs November 30th, 1841, on this Division, $73,029 77.

ALLEGHENY PORTAGE RAILROAD.

REPAIR DEPARTMENT.

The transportation upon this road has been carried on during the entire season without any interruption. The action of the frost upon the roadway, owing to the early period of the year at which operations must necessarily be commenced, has caused an increased amount of labor to be expended in the adjustment of the tracks. Since the last report, the repairs have been chiefly confined to the insertion of additional cross-ties, raising the outer rails at the curves, opening the drains, putting in new timbers upon the inclined planes, and repairing slope walls. The road, with the exception of the planes, is in good order.

The difficulty of keeping up a regular supply of water for the locomotive and stationary engines, is still experienced. This arises principally from the perishable character of the material of which the pipes, conducting the water from the stream or springs to the several stations, are composed. As a measure of economy, and the better to insure a constant supply of water, it is proposed to substitute iron for wooden pipes.

The amount drawn from the Treasury for old debts and repairs for the fiscal year, ending the 30th of November, 1841, is $15,098 67.

Debts due for repairs, November 30, 1841, on the Allegheny Portage Railroad, $48,760.

MOTIVE POWER DEPARTMENT.

The operations of this department commenced on the 29th of March, and were continued through the year without any interruption.

The receipts from motive power tolls from the 1st of November 1840, to the 30th November, 1841, amounted to	$92,061 17
Expenses for same period, - - - -	89,305 38¾
Excess of receipts over expenditures,	$2,755 78¼

The expenditure for repairs of machinery has been increased by the defective construction of the foundations which support some of the stationary engines.

The Superintendent has entered into contract for three new ropes for the inclined planes. Seven more will be required during the next season. The improvement noticed last year, in the manufacture of ropes purchased for the use of the planes, has fully realized the expectations then expressed. The outside strands of the rope are tarred at the time of their manufacture; and experience has shown that they last one-third longer than those made in the ordinary manner.

WESTERN DIVISION.

No material interruption to the navigation on this line has been experienced during the year, except that which has annually arisen from the inadequate supply of water to the upper levels during the summer months. This serious impediment to the free use of the canal, will be removed as soon as the Reservoir on the western side of the Allegheny mountain shall have been completed.

At Grant's Hill, the masonry of the tunnel and the embankment above the arch, have been completed from the southern termination of the old tunnel to Fourth street bridge. There is still a balance due the contractor for this work, of $————, for which a specific appropriation will be necessary.

The good effects of raising and strengthening the weak portions of the canal banks, has been sensibly felt during the year. The plan will be persevered in, so far as funds will permit, as a measure both of precaution and economy.

The re-building of the two locks near Leechburg, has been completed. Three other locks are in so dilapidated a condition as to require immediate attention. Arrangements have been made for their repair during the close of the navigation.

Twenty-eight lock gates, several of the water-ways around locks, and the sheet piling of a few of the locks, require renewal or repairs.

The dams are generally in good order, and will only require the usual gravelling to make them tight, with the exception of dam No. 3, the protection cribs of the southern abutment of which, have become decayed, and will require renewal during the next summer.

The aqueducts, culverts and waste-weirs, will likewise require some repair.

Forty-six bridges have been rebuilt, with stone abutments substituted for the former temporary wooden structures. Two more have been placed under contract. Several others have fallen down, and must be renewed.

The amount drawn from the Treasury, for old debts and repairs for the financial year ending the 30th of November, 1841, is $38,403 26.

Debts due for repairs November 30, 1841, on Western division, $56,497 40.

RESERVOIRS.

The work upon these indispensable feeders to the Juniata and Western Divisions has so far progressed as to ensure their completion during the next summer, if an early appropriation be made for that purpose. The importance of these Reservoirs to the main line, and the absolute necessity which exists for bringing them into use as early as practicable, were again fully demonstrated the past season. In the summer months it was found impossible to maintain a sufficient depth of water in the upper levels to pass boats containing more than half loads. To save water for the purposes of navigation, the weigh-lock at Johnstown was closed on the 17th of August, and not re-opened until the 25th of September, and from the same cause but very few boats have been weighed at the lock at Hollidaysburg since July last. The evils resulting from these annual interruptions have been fully commented upon in former reports of the Board. Until a sufficient supply of water has been obtained to keep up the original capacity of the upper levels at all periods of the navigable season, the usefulness of the main line must continue to be impaired, the cost of transportation increased, and the revenues of the Commonwealth consequently diminished by the diversion of trade to other channels. The Reservoirs will be constructed of such capacity as to ensure a regular and permanent supply of water. To their completion, then, we can alone look for the removal of one of the prominent causes of delay and expense in the transportation of merchandize at those seasons of the year when the mountain streams do not yield a supply adequate to the requirements of the line.

THE EASTERN RESERVOIR,

Is located on the South Branch of the Juniata, one mile and a-quarter from Hollidaysburg. The plan of this Reservoir has been carefully matured, with a view of commanding a full supply of water at those periods when the natural sources invariably fail.

The depth of the water at the dam will be	28 feet.
Area of land flooded,	450 acres.
Available contents of pool,	320,000,000 cubic feet.

This will afford a supply of water, without any assistance from rain, or the flow of the streams, sufficient to feed the canal for five months in the year, which is a longer period than has heretofore been observed in which interruptions from extreme low water have been felt. The supply from natural causes will, however, add to the length of time the Reservoir may be relied upon as a feeder, when that from other sources fail.

The estimated cost of this work is $100,000. The cost of work done, and materials furnished, is as follows:

Work at dam,	$44,000
Clearing,	250
Cast and wrought iron,	5,000
Examinations for rock,	1,600
Cement,	350
Lead,	800
Stop-cocks,	1,000
Total,	$53,000

Nearly one half of the dam has been completed; the foundation of the Aqueduct across the South Branch has been laid; the iron, both wrought and cast, has been principally prepared; and the clearing can be finished as soon as may be required.

THE WESTERN RESERVOIR,

Has been located on the western side of the Allegheny mountain, on the south branch of the Little Conemaugh, about two miles from the Portage Railroad, and ten miles above Johnstown. The capacity of this work is as follows:

Depth of water in dam,	62 feet.
Area of land flooded,	420 acres.
Contents of pool,	480,000,000 cubic feet.

Which, deducting for evaporation, will give a supply of 450,000,000 cubic feet of water for the purposes of navigation during the periods most required. This quantity, it is estimated, will be sufficient to feed the upper levels of the Western Division for six months, even if the transportation should increase so as to require the full capacity of the Portage Railroad. The necessity for its completion must, therefore, be apparent.

The cost of work done, and materials furnished, is as follows:

Work at dam,	$42,000
Clearing,	26,000
Iron,	7,000
Cement,	2,200
Stop-cocks, lead for pipes, and laying and testing pipes,	2,800
Total,	$80,000

The estimated cost of the Eastern and Western Reservoirs is,

Eastern,	$100,000
Western,	188,000
Total,	$288,000
Deduct amount appropriated,	120,000
Amount required to complete,	$168,000

BEAVER DIVISION.

This line suffered considerable injury from the freshets of last spring. The lower half of dam No. 2, was almost destroyed; three towing path bridges, and the abutment of another, carried away; the towing paths along the pools much washed; and heavy sand-bars formed below dam No. 2, and at the mouth of Connoquenessing creek. The damages having been promptly repaired, the line is now in good navigable order.

The navigation was much retarded during the summer, in consequence of the unprecedented lowness of the water in the Beaver river, and of the leaky condition of some of the dams and guard locks.—From these combined causes, a full depth of water could not be maintained in the canal. The interruption to trade from this source, will cease upon the completion of the Erie extension. When that event takes place, a sufficient quantity of water will be received from the Summit reservoir, to enable boats at all times to carry their full amount of tonnage.

The new towing path bridge over the Neshannock, at New Castle, is nearly finished. During the year, the dams, locks, bridges, towing paths, &c., have received such repairs as the state of the funds at the command of the Supervisor would enable him to execute.

The productiveness of this division will, in a great measure, depend upon its connexion with the Lakes, by the completion of the Erie Extension. Its receipts from tolls, have, heretofore, been restricted by its incomplete condition. At present these receipts are derived from a limited local trade, and from the produce and merchandize brought on to it by means of the Pennsylvania and Ohio canal. Notwithstanding this restriction of its capacity, which will cease to exist when the line shall have been finished to the harbor of Erie, the tolls received for the fiscal year, just ended, double those received for the same period of the preceding year.

The following is the estimated amount required for repairs:

Repairing dams,	$ 800 00
Removing deposites in pools of dam,	1,800 00
Repairing and raising towing paths,	2,000 00
Repairing locks, gates, &c.,	2,100 00
Bridges,	200 00
Cleaning out prism of canal,	100 00
Total,	$7,000 00

The amount drawn from the Treasury for old debts and repairs for the fiscal year, ending the 30th of November, 1841, is $27,000.

Debts due for repairs, November 30, 1841, on Beaver Division, $27,449 16.

FRENCH CREEK DIVISION.

FEEDER LINE.

This portion of the Division remains in the same condition as at the date of the last annual report. It has received no repairs during the year, except at the feeder dam at Bemus' mill. This dam was destroyed in 1837. A contract was entered into last year for re-building, under a previous specific appropriation, and it is now nearly completed.

The feeder line is mainly designed to supply the Summit reservoir of the Erie extension with water. The propriety of placing it in such a state of repair, as to answer the important purpose for which it was constructed, has been so frequently urged upon the attention of the Legislature, that the Board deem it unnecessary to do more at this time than to refer to former reports upon the subject, and to the accompanying report of the Engineer, for a full statement of its condition; and the necessity which exists for having it repaired previous to the completion of the Erie extension, which will not be throughout available for the purposes of transportation, until it receives its supply of water through the feeder from French creek.

The estimated cost of repairing the line, is as follows:

Feeder dam at Bemus' mill,	$21,539 96
Repairing towing-path,	1,500 00
Aqueduct over French creek,	19,607 50
Aqueduct over Watson's run,	3,140 00
Seven waste weirs,	8,400 00
Thirty bridges,	9,000 00
Repairing and straightening canal,	22,500 00
Raising towing-path on twelve miles,	6,750 00
Guard gates,	2,000 00
	$94,437 46
Deduct special appropriation to Bemus' dam,	15,000 00
Total amount required,	$79,437 46

If the Legislature should determine upon the repair of the line, $50,000 will be required for the current year.

The amount drawn from the Treasury for old debts and repairs, for the French creek division, for the year ending the 30th of November, 1841, is $6,884 28.

FRANKLIN LINE.

The Legislature not having taken any action on the question of repairing this line, it consequently remains in the same dilapidated and almost useless condition, as represented in the last report of the Board. The accompanying report of the Engineer, exhibits a statement of its present condition, and the reasons adduced in favor of its being immediately repaired. To that report the Legislature are respectfully referred. Unless an appropriation should be made for the purpose, the people of the country bordering on French creek, must continue to be deprived of the advantages which they anticipated from the improvement.

The estimated cost of repairing the line, if the Legislature should deem it expedient, is as follows:

Repairing Locks,	$27,500 00
" Dam No. 2,	3,100 00
" " No. 3,	7,400 00
" " No. 5,	4,700 00
" " No. 6,	6,750 00
" " No. 7,	1,200 00
" " No. 8,	1,400 00
" " No. 9,	3,650 00
" " No. 10,	4,200 00
" " No. 11,	100 00
New Canal to supply the place of Dam No. 1,	54,513 00
Finishing new Canal above Dam No. 4.	12,381 36
Repairing towing-path bridges,	3,700 00
Canal bridges and waste-weirs,	550 00
Repairing and raising towing paths,	6,000 00
Total,	$137,144 36

If no appropriation should be made at this session, for the thorough repair of the line, $15,000 will be required to protect it in its present condition.

WEST BRANCH DIVISION.

The navigation on this division has been maintained during the year without any material interruption. The only injuries sustained by floods, were to the Muney and Lycoming Aqueducts; the carrying away of the Culvert over Miller's run; and some trifling damage to the dams and schutes. These were, however, promptly repaired.

Only such repairs have been made since the last report, as were required to keep the division in navigable condition.

The Dunnstown and Muncy dams have, heretofore, received partial repairs. Further repairs are required at both these structures, particularly the latter.

Nothing has been done to repair the defects in the line at and near the mouth of the Loyalsock. The following extract from the annual report of the Board to the last Legislature, will fully explain the difficulties encountered at this point, and the plans proposed to obviate them.—"The dam across Loyalsock creek, requires new covering, and some other repairs. The works connected with this dam being so low, as to be liable to inundation in times of high water, the Board recommended in their last report, the raising of the embankments.—That recommendation is now renewed. The difficulty of maintaining a sufficiency of water in the level below Loyalsock creek, in consequence of the large quantity drawn off for the use of Stevenson's mill, should be obviated as soon as practicable. This can only be done by stopping the supply at the mill, and the consequent payment of heavy damages, the purchase of the property, or the construction of a weir across the head of the mill race, near the top water line of the canal, so arranged as to protect the flats below from injury in times of high water. The cost of adopting the last mentioned plan, is included in the Engineer's report." This subject is therefore again brought to the notice of the Legislature for their consideration.

The Lewisburg dam and side cut, remain in the same condition as when last reported upon. An appropriation of $8,500, having been made at the last session towards their repair, directions have been given to the Supervisors of the line to receive proposals for the purpose, and the work will shortly be put under contract. It will be seen by reference to the estimates of the Engineer, that the appropriation will not cover the cost of the repairs actually required. A further sum will therefore be necessary, before the dam and cross cut can be made of any essential benefit as a medium of communication between Lewisburg and the main branch of the division.

The Board, in both their last annual reports, urged upon the Legislature the propriety of completing the Bald Eagle and Spring creek navigation: an improvement, which, although under the management and control of an incorporated company, is nevertheless emphatically a State work. Every dollar which has thus far been expended in its construction, has been furnished on the faith and credit of the Commonwealth, and the small portion of work remaining unfinished should forthwith be completed, in order to render the investment productive. The Act of the 7th of April, 1835, pledged the faith of the State for the payment of an interest of 5 per cent. per annum for twenty-five years, on the capital stock of the company, amounting to two hundred thousand dollars, and the State has subsequently become a stockholder to the amount of twenty-five thousand dollars. So that, finished or unfinished, the interest must be paid out of the public coffers. The whole length of the improvement is twenty-five miles, of which, nineteen miles, commencing at the State dam across Bald

Eagle creek, near Mill Hall, in Clinton county, and extending to the Eagle iron works, in Centre county, have been completed. On the remaining six miles, from thence to Bellefonte, about one-third of the excavation and embankment is done, two locks are completed, and another nearly finished. A large amount of tonnage has already found its way by this channel to an eastern market, from the rich mineral and agricultural region through which it passes; and if it were in a navigable condition throughout its entire length, the Board are fully satisfied it would prove a most valuable feeder. Situated as it is, at the western extremity of the West Branch line, the trade passing from it to the State works, would pay a very large amount of toll to the Commonwealth, before it reaches its destined mart. The tolls being pledged by existing laws to meet the guaranty, it is the obvious policy of the government, in every point of view, to complete the work immediately.

The amount drawn from the Treasury for old debts, and repairs for the fiscal year, ending the 30th of November, 1841, is $ 33,785 48.

Debts due for repairs, November 30, 1841, on West Branch Division, $ 17,924 77.

NORTH BRANCH DIVISION.

The extensive repairs on this line, stated in the last report as in a state of progress, have been completed. The Engineer reports that all the lift-locks and the necessary water ways around them have been re-built, and are entirely finished, and the guard-lock only requires the floor to be put in to complete it, but could be used at any time in the event of the old one failing. The aqueduct over Mill creek has been entirely re-built in a superior manner; and the one over Lodge's run has had the superstructure renewed, and a part of the masonry re-built; it is now entirely done, and is much enlarged and improved. A substantial towing path has also been formed nearly the whole length of the Nanticoke pool. Forty-nine bridges have been re-built; and twelve are so far completed as to be in use, and the wood work of ten more is in a forward state.

The repairs, and the failure to obtain the full amount of former appropriations, has left a large sum due to contractors and others.

It will be seen by a reference to the table of tolls, that the revenue derived from that source has been considerably increased the past year. The offices at Wilkes-Barre and Berwick cleared from the 1st of November, 1840, to the 30th of November, 1841, 65,078 tons of coal. A large quantity of this was, however, intended to supply the iron works which have recently sprung up along the line. The increase in these works and in the developement of the mineral resources of the country bordering upon the division, render a regular yearly addition to receipts from tolls certain.

The amount drawn from the Treasury for old debts and repairs for the fiscal year ending the 30th of November, 1841, is $74,907 77.

Debts due November 30, 1841, on North Branch Division, $131,644 61.

The amount due for repairs on this division may, to those unacquainted with the facts, appear large; but when it is known that all the mechanical work was originally constructed of wood, on a very cheap plan—that, having been in use more than ten years, it all required renewal, and that upwards of seventy bridges, eight locks and two aqueducts, have actually been re-built of stone in a permanent manner, this large indebtedness will be satisfactorily explained. A heavy rip-rap wall has also been thrown up at considerable expense to protect the towing-path along the pool of the Nanticoke dam. These repairs could no longer be postponed. The wooden superstructures had been patched and temporarily repaired, until all further attempts to keep them up were useless, and the Board had either to contract debts to renew them, or abandon the navigation and suffer the works to dilapidate. The former course was preferred, and instead of the temporary fixtures, adopted in the first instance, substantial permanent structures have been erected.

In the spring of 1839, the feeder dam at Lackawana, having been originally founded on a gravel bottom, was entirely swept away, and navigation has since been kept up by means of a temporary brush dam, which annually requires renewal. The 4th section of the Act of the 19th of July, 1839, authorized the Canal Commissioners to change the location of the feeder dam on the Lackawanna river, and, if necessary, to extend the feeder up said creek to a distance not exceeding two miles; if, in the opinion of the Commissioners, after a careful examination, they should deem such change necessary to promote the interests of the Commonwealth, and secure the permanency of the work. The Board, in pursuance of said act, personally examined the proposed change of location, and expressed their opinions fully on the subject in their annual report, transmitted to the Legislature on the 23d of January, 1840. We then stated that a good location occurred about one-third of a mile above the old dam, which, for all the purposes of a *mere feeder*, should be preferred; but, at the same time, stated that, if the Legislature designed also to furnish to the inhabitants of Lackawanna valley an outlet for their rich mineral and agricultural products, at present cut off from the improvements by the rapids in the Lackawanna river, which occur within two miles of its mouth, rendering it unsusceptible of navigation, then the canal should be extended beyond the "Falls," and the dam constructed about one mile and seven-eighths above the former location. The site at that point is decidedly preferable to all others, requiring but about two hundred feet weir, on rock bottom, and having for its abutments, on either side, a natural rock of coarse sand-stone. This change was estimated to cost $96,000, and the whole subject referred to the Legislature for its final decision, inasmuch as that sum was deemed by the Board too large to be thrown upon the fund for repairs. No legislative provision has yet been made to justify the commencement of this work; but the Board, being satisfied of the propriety of the proposed change, on the first of September last, established the location, and

authorized the Supervisor to advertise for sealed proposals for the construction of the work. The bids have been received, but no further action had on the subject. If the Legislature determine to construct the feeder as located, an appropriation of $96,000 is required—if otherwise, then the dam should be re-built at the point first suggested, and the present temporary expedient abandoned. The cost at lower location will be $12,000.

SUSQUEHANNA DIVISION.

No repairs have been commenced the past year, except such as were actually necessary to keep the line navigable. The Shamokin dam, requiring considerable repair, was placed under contract last summer. A large amount of materials has been delivered, and considerable progress made in the work. For the want of funds to pay for the work done, and materials delivered, the contractor was compelled to suspend further operations. If funds should be provided, it will be completed next season.

The re-building of Penn's creek Aqueduct has been finished, and is now in use. It has been built in a most substantial manner, on a site a short distance below the old aqueduct.

Three bridges have likewise been re-built or repaired, and several lock gates re-placed.

The amount drawn from the Treasury for old debts and repairs, for the fiscal year, ending the 30th November, 1841, is $29,572 18.

Debts due November 30, 1841, on Susquehanna Division, for repairs, $26,000.

The following statement shows the amount of tolls collected on the Susquehanna branches for the twelve months ending the 31st of October, 1841, as compared with those received in the corresponding period of the previous year:

Offices.	1840.	1841.
Dunnstown,	12,309 89	11,762 40
Williamsport,	7,960 64	8,068 70
Northumberland,	23,280 16	30,929 20
Berwick,	5,550 10	15,906 54
Wilkes-Barre,	2,316 41	8,446 19
Liverpool,	8,097 73	11,105 40
	$59,514 93	$86,218 43
		59,514 93
Increase,		$26,703 50

The increase at the same offices for the month of November, 1841, is $2,783 66 over the receipts of November, 1840, making a total increase of $29,487 16 for the thirteen months, ending November 30th, 1841, as compared with the receipts for the thirteen months ending the 30th November, 1840.

The slight decrease in the receipts at Dunnstown is accounted for by the fact of the suspension of operations at Farrandsville by the Boston Iron and Coal Company.

NOTE.—[To explain the comparisons in the above statements, it may be proper to state, that owing to the change in the fiscal year, the table of tolls received for 1841, comprise a period of thirteen months, ending on the 30th of November, whilst those of the previous year were only for twelve months, ending on the 31st of October. A separate comparison has, therefore, been instituted between the twelve months of the years 1840 and 1841, ending with the 31st of October, the termination of the old fiscal year, and for the months of November 1840 and 1841, the close of the present fiscal year.]

ERIE EXTENSION.

This extension is intended to connect with the Beaver Division, and by that means to unite the waters of the Ohio and Lake Erie. It will be 105½ miles in length, and is divided into two lines.

THE SHENANGO LINE

Commences at the head of the Beaver Division, and extends to the summit of Conneaut Lake, a distance of sixty miles. Since the last report, three miles of this line have been completed and put in operation; which, with the forty-three miles which were finished in 1840, gives to the extension forty-six miles of navigable canal from the head of the pool, six miles above New Castle, to a point three miles above the town of Greenville, in Mercer county.

The following statement will show the several items of work on this line, and their present condition:

84 Sections—three of which only are unfinished.
44 Locks—all finished.
5 Dams—all finished.
3 Aqueducts—all finished.
11 Towing path bridges—all finished but one.
24 Waste weirs—all finished.
22 Road bridges—all finished but two.
47 Farm bridges—all finished but six.
38 Lock Houses—nineteen of which are finished.
33 Clearing sections at Conneaut Reservoir—seven unfinished.

The cost of the work yet to be done is estimated at $37,249 70. The whole line could be finished in a few months.

THE CONNEAUT LINE

Is 45½ miles in length, and commences at its junction with the Shenango line, at the summit of Conneaut Lake, and terminates in the harbor of Erie.

There are on this line,

61 Sections—30 of which are finished; 31 two-thirds done.
71 Locks—38 finished; 33 7–11 done.
84 Bridges—31 finished; 18 two-thirds done.
2 Aqueducts—one-third done.
5 Culverts—3 finished; 2 half done.

The work not under contract consists of 50 waste weirs, 4 stop gates, and 48 lock houses, the estimated cost of which is $92,600 00.

The estimated cost of work done, the estimated cost of work to be done, and the total estimated cost of the Shenango and Conneaut lines, are exhibited in the annexed statement:

	Estimated cost of work done May 1, 1841.	Estimated cost of work done Dec. 1, 1841.	Estimated cost of work to be done Dec. 1,'41	Total estimated cost of line.
Shenango line,	$1,655,418 17	1,712,282 58	37,249 70	$1,749,532 28
Conneaut line,	1,032,833 39¾	1,207,224 43¾	498,892 76¼	1,706,117 20
	$2,688,251 56¾	$2,919,507 01¾	$536,142 46¼	$3,455,649 48

From this statement it will be seen that the estimated cost of work to be done is - - - $536,142 46¼

To which must be added,

Amount due contractors 1st December, 1841, over appropriations, - - - 241,442 47¾

Balance of appropriation of last year not yet available, 332,963 76

Amount required to pay debts and complete, $1,110,548 70

The above amount of $241,442 47¾ due contractors on the 1st December, 1841, over former appropriations is, with the exception of $10,186 92¾, for work done since the 1st of May, 1841.

It will thus be seen that the cost of work done is estimated at $2,919,507 01¾, on which there remains due to contractors the sum of $574,406 23¾, including the unavailable balance of the appropriation of last year; that the cost of work yet to be done amounts to $536,142 46¼; and that the entire cost of the Erie Extension is estimated at $3,455,649 48.

It is not necessary for the Board to offer arguments in favor of the immediate completion of this important extension. The reasons which actuated the public authorities, in commencing and carrying it on for years, are spread upon every page of former reports. The line is now so nearly finished that it would cost as much, nay more, to suspend operations, abandon the contracts, and suffer the works to dilapidate and become a disgraceful monument of our folly and weakness, as it would to complete them, and at once render the investment hitherto made, productive. Whatever question there might have been at first, in relation to the propriety of commencing this stupendous project, common sense and common honesty now demand that there should be no diversity of opinion—the work cannot be suspended.

The immense expenditure already incurred—the small amount required to complete—the plighted faith of the Commonwealth—the ruinous consequences to landholders, contractors, and all concerned, emphatically forbid that such an idea should be for one moment entertained by an enlightened Legislature.

NORTH BRANCH EXTENSION.

This branch of the public works commences at the mouth of the Lackawanna, and terminates at Athens, about four miles below the New York State Line. It is divided into two lines, the Tioga and the Tunkhannock.

THE TIOGA LINE

Commences at the village of Athens, and extends to Wyalusing Creek, a distance of thirty-five miles and fifty-six chains. The whole of this Line has been under contract for some time, and has so far progressed that it will only require an additional appropriation, exclusive of the amount due to contractors of $282,856 08 to complete to its present point of termination. Thirty sections, making an aggregate length of nineteen miles and two hundred and eighty-eight rods, have been completed. The remainder of the work has been so far advanced as to insure the completion of the line during the next year, provided the necessary appropriation should be made.

There is due to contractors the sum of $101,593 39 for work done to the 1st of December, 1841.

The estimated cost of the Tioga Line is exhibited in the following abstract:

Total cost of work done to 1st December, 1841,	$ 1,222,011 19
Estimated cost of work to be done, -	215,656 08
Cost of extending and securing Dam No. 2, repairs, &c. to schute, guard-lock, and sections Nos. 27 & 28,	67,200 00
Total estimated cost, - -	$ 1,504,867 27

The item of $67,200 00 in the above estimate has been rendered necessary by damage sustained to the works therein specified. In March last a destructive ice-freshet occurred on the Line, which threw over about 265 feet of the outer wall of the schute of Dam No. 2, displaced 248 feet of the inner wall, washed out about 1,000 perches of paving, and a large quantity of filling between the schute walls, and undermined the lower corner of the west abutment. The guard bank was entirely carried away, and a channel formed around the east abutment of the Dam; the upper wing and a few stone in the corner of the abutment being displaced. A large portion of the masonry of the guard-lock was destroyed, together with a quantity of materials, consisting of cement, gate timber, dressed stone, &c. About 25 chains of the embankment below the guard-lock, was also swept away. The necessary means to preserve the Dam in its present di-

lapidated condition have been adopted. Experience having shown that the weir of this Dam is not of sufficient length to give vent to the water in times of high freshets, it is proposed to extend the Dam about six hundred feet, so as to secure the works adjoining it, and to give a more permanent character to that portion of the Line. For this purpose, and to repair the damages caused by the flood, the sum of $67,200 00 has been inserted in the estimated cost of the Tioga Line.

THE TUNKHANNOCK LINE

Extends from Wyalusing creek to the Lackawana, and is fifty-four miles and nineteen chains in length.

Thirty-two sections of this Line have been completed, making, in the aggregate, a length of twelve miles and one hundred and ninety-two rods. The condition of the remaining portion of the work will be seen by reference to the Report of the Engineer.

There is due to contractors the sum of $282,083 03.

The work done on the Tunkhannock Line to the 1st of December, 1841, amounted to	$ 1,126,265 19
Estimated cost of work to be done,	1,015,559 95
Total estimated cost of Tunkhannock Line,	$ 2,141,825 14
Estimated cost of Tioga Line,	1,504,867 27
Total estimated cost of North Branch Extension,	$ 3,646,692 41

There was due contractors on the 1st of December, 1841,

On Tioga Line,	$ 101,593 39	
On Tunkhannock Line,	288,083 03	
		$ 389,676 42
Add amount of work remaining to be done,		
On Tioga Line,	$ 282,856 08	
On Tunkhannock Line,	1,015,559 95	
		1,298,416 03
Total amount required to pay debts and to finish North Branch Extension,		$ 1,688,092 45

From these statements it appears that the cost of work done on the Tioga and Tunkhannock Lines, is $ 2,348,276 38, on which there remains due to contractors the sum of $ 389,676 42; that the estimated cost of work remaining to be done, is $ 1,298,416 03; and that the entire cost of the North Branch Extension is estimated at $ 3,646,-692 41.

The Act of Assembly of the 4th of May last, made no provision for prosecuting the works on the several unfinished lines of improvement, consequently, a large proportion of the contractors on this division discontinued operations. As both branches of the Legislature, by a

deliberate vote, had refused to direct a final suspension of the work, this Board did not feel themselves authorized to pursue a course so disastrous to the best interests of the Commonwealth, in the absence of positive and unequivocal legislation. The consummate folly of commencing great State works, and expending in their construction millions of dollars, and then abandoning them on the very verge of completion, was so manifest, that this Board were unwilling to participate any further in the transaction, than to barely fulfil the specific requirements of the law. Such contractors, therefore, as were willing to prosecute their work under the circumstances, relying for remuneration upon subsequent legislation, were permitted to do so, receiving payment only on such work as was executed previous to the first of May.

In the opinion of this Board, the time for deliberation on the subject of completing the unfinished lines of improvement, in which the Commonwealth is now embarked, has gone by. Too much money has been expended—too much damage has been created—and too destructive will be the consequences to all concerned, for such an idea to be one moment entertained by those in authority. The North Branch Extension has already cost near two and a-half millions of dollars, to which, if the work should be now suspended, must be added the damages sustained by holders of private property throughout the whole extent of the line; and the damages to contractors who have, at an immense expense, made all the preparations necessary to enable them to complete their jobs, relying upon the pledged faith of the Commonwealth. The annual interest of the sum expended must also be paid, whether the works are finished or not. The work remaining to be done, will cost less than one and a-half million of dollars; which, when completed, will open a very important, and, unquestionably, the most profitable line of improvement in Pennsylvania. Let those who doubt this remark, cast their eyes to the map, and observe the point at which it will connect the public works of Pennsylvania with those of New York—that it opens a direct water communication between the great iron and anthracite coal region of the Susquehanna and the far West. The trade which would be brought on the canal by the thousands and tens of thousands of tons of coal which would be shipped to supply the cities, flourishing villages, and salt works in western New York, would alone yield toll enough to pay the interest on the cost of construction: but when it is reflected that it affects, also, the nearest connexion between the anthracite coal region of Pennsylvania and the boundless country bordering on the Lakes, who, in his senses, will set limits to the trade below the entire capacity of the canal?

Entertaining these views, the Board would now, as heretofore, respectfully, but earnestly, urge the Legislature to make immediate and ample provision for completing the North Branch Extension. If funds can be had, even at an advanced rate of interest, the clearest dictates of prudence and sound economy, require, that now there should be no hesitation. Pennsylvania having, by many successive Legislatures, pressed forward this important work, with a firmness characteristic of the steadfastness of purpose with which she moves on in all

her enterprises—every motive of public interest demands that *now*, when boldness and energy are required, the counsels of the timid should not prevail.

WICONISCO CANAL.

This canal commences at Millersburg, at the mouth of Wiconisco creek, and is 12¼ miles in length. If the necessary appropriation should be made, it can be finished next fall.

No appropriation having been made the last session to prosecute the work, the contractors have done very little during the season.—Section No. 3, aqueduct No. 3, and lock No. 5, have been completed since the last report.

The principal work to be finished, is on sections Nos. 8, 22, and 25; locks Nos. 2, 3, 4 and 6; aqueducts Nos. 1 and 2; on thirteen bridges, three waste-weirs, six lock-houses, and a small dam across the Wiconisco creek.

Estimated amount required to complete the canal $81,836 00: to which must be added the sum of $26,753 79, due contractors and others on 1st December, 1841.

The Engineer reports "the cost of making this canal will doubtless be considerably increased in consequence of its remaining in its present unfinished state; for the materials delivered for the mechanical work will probably be injured, the embankments will be washed down by the rains and floods, and some of the jobs, it is supposed, will be abandoned."

This line of canal reaches from Clark's ferry dam, up the Susquehanna, to a point opposite the western end of the Pottsville or southern coal field, and, when completed, will open the trade from this, which is the nearest anthracite region to tide water in the valley of the Susquehana. The coal from this region will pass on the State improvements from Millersburg to Columbia, a distance of fifty-four miles.—As the work is nearly completed, and the amount of tonnage which it would bring upon the public works would undoubtedly be large, the Board are of opinion that the requisite legislation should be had to insure its immediate completion.

SINNEMAHONING EXTENSION OF THE WEST BRANCH DIVISION.

This extension was suspended in 1839, in consequence of no appropriation having been made to prosecute it. Of course no work has been done on it since that time. The line extends from the mouth of the Tangascootac to the mouth of the Sinnemahoning, and is thirty-three miles in length.

The total estimated cost of the line is	$1,388,099 15
Amount of work done,	142,419 99
Amount required to complete,	$1,245,679 16

The fifth section of the Act of the 7th of June 1841, entitled "An Act for the relief of William Stewart, late a contractor on the Erie extension of the Pennsylvania canal, and for other purposes," authorized the Canal Commissioners to examine and settle the claims of the contractors on the Sinnemahoning line of the West Branch division, for damages and losses alleged to have been sustained in commencing work thereon, in erecting necessary buildings, and in purchasing tools, provisions and furniture, in consequence of the suspension of said work. In pursuance of this Act, the Board have settled all the claims which have been presented, amounting to about forty. The aggregate sum allowed upon these, is $20,218 00, for which warrants were drawn in conformity with the provisions of the Act, upon the State Treasurer, to be paid out of any moneys in the Treasury not otherwise appropriated. There are several claims under this Act which have not yet been presented for the action of the Board.

TANGASCOOTAC EXTENSION.

Last year the Board called the attention of the Legislature to the condition of the dam at Farrandsville. This work has never been finished. The owners of the mines on the Tangascootac, are deeply interested in the completion of this work, as a channel by which they can send their coal to a market. Estimated cost of completing dam $24,000. Until the dam shall be erected, the whole expenditure on this extension will remain unavailing.

ALLEGHENY FEEDER AND THE GETTYSBURG RAILROAD.

These works having been suspended, consequently remain in the same condition as at the date of our last report.

The amount expended upon the feeder is $31,100; and upon the Railroad $666,666 66, exclusive of damages to land-holders. As has been before represented, the disposition which should be made of this road is a subject requiring the attention of the Legislature.

CLAIMS AND DAMAGES.

The Board have acted on all the special claims referred to them by acts and resolutions of the General Assembly, so far as they have been submitted to them, and the proofs obtained necessary to a clear understanding of the merits of the respective cases.

The banks having failed to take the whole of the loan authorized by the Act of the 4th of May, 1841, the funds received for canal purposes were apportioned to objects considered of the first importance. A very small amount has therefore been drawn for the payment of damages. But few claims of this description have been acted on during the year, owing to the unfinished state of the lines, by the construction of which the damage has been sustained. This course has

been pursued as one best calculated to subserve the interests of the Commonwealth and the owners of land. Until a line has been completed, and the water introduced, the measure of damage cannot be properly ascertained.

WATER POWER.

By the eighth section of the Act of the 5th of May last, entitled "An act to incorporate the Allegheny and Butler Turnpike Company, and for other purposes," the Canal Commissioners were authorized to sell, dispose of, lease, or demise on behalf of the Commonwealth, the surplus water owned by the Commonwealth, and not required for the purposes of navigation on the several lines of the Pennsylvania canal and slack water, under certain rules, regulations, and restrictions therein specified. The Board, on the 20th of October, directed the Principal Engineers to make an examination of the several sites on the lines of canal and slack water under their charge, where surplus water could be spared, or water privileges granted in pursuance of the aforesaid act, and also instructed them to report the result of their examinations to the Board, accompanied with plans, profiles, and diagrams descriptive of the situations where, in their opinion, water privileges could be granted without injury to the public works. Reports have only been received from the Juniata and Western Divisions; the Engineers, however, are busily engaged on the other lines, and full reports may be expected from each before the opening of navigation the ensuing spring. Means will then be promptly adopted to carry the law into immediate effect, and secure the benefits of a measure at once calculated to promote the public interests.

SURVEYS.

The Engineer having charge of the surveys for a continuous Railroad between Harrisburg and Pittsburg, and of the survey of a M'Adamized road between Chambersburg and Laughlinstown, has deposited in their proper places the profiles, maps, and documents relating to the surveys, and has laid before the Board his very able and satisfactory report, accompanied by estimates of all the lines surveyed under the acts passed by the Legislature on the 19th of July, 1839, and the 6th of May, 1840.

The information contained in the communications received from Mr. Schlatter last year, induced the Board to feel the greatest solicitude in the success of these surveys, as it was rendered evident from the information then obtained, that a route by continuous railroad, without inclined planes, and with low gradients, existed within the borders of our own State, by which the trade and travel could be passed between Philadelphia and Pittsburg cheaper than by any other route now known.

This route was designed as the middle or preferred route, and was described as passing up the valleys of the Susquehanna and Juniata

rivers to Lewistown, where it leaves the Juniata, and follows the valley of the Kishacoquillas—passes down Mill creek to the Juniata, occupies the valley of the Juniata to the Little Juniata, which last stream, and its tributaries, is followed to the summit of the Allegheny mountain, two miles north-east of the Portage railroad. From the summit, the route passes down to the Black Lick creek, and by its valley to a point on the Conemaugh river, below Blairsville—crosses the Conemaugh, and by a very direct course through Westmoreland and Allegheny counties, reaches Pittsburg.

In his report of January 9th, 1841, the Engineer directed the attention of the Board to the possibility of saving distance on the route above described, by leaving the line at Brown's Mills, six miles above Lewistown, and by a straight course, join the line again at a point three miles above the junction of the Little Juniata with the Juniata river. Although not sanguine as to the success of this route, yet the possibility of saving ten miles in distance, over the route already decided upon, induced the Board to direct careful surveys to be made between Brown's Mills and the Little Juniata river, and the result has proved that a distance of eleven and one-quarter miles will be saved by the adoption of this route, without, in a single instance, exceeding the maximum gradient of forty-five feet per mile. This great saving in distance cannot be effected without an increased expenditure over the route proposed last year, as will be seen by referring to the report of the Engineer on the "Stone Mountain Route;" but this increase of expenditure may be considered as counterbalanced by the advantage which must inevitably be given to that route which will convey passengers and trade from the west, and from the Lakes to the sea-board, by the shortest distance, and with least expense for fare and freight. The surveys for a continuous railroad from Harrisburg to Pittsburg, have, it is confidently believed, established this most desirable route within our own borders.

The distances, and maximum gradients of the Railroads now rapidly approaching completion, both to the North and to the South of our State, and stretching out their iron arms to draw the wealth of the far West to the cities of Boston, New York and Baltimore, will exhibit, when compared with the routes brought to light by the surveys of the last two seasons, more clearly than any thing the Board can state, the advantages which nature has bestowed upon Pennsylvania in making her the channel through which must eventually pass, the greatest portion of the vast productions of the West.

The following table was prepared by the Engineer, from data which will be found in his Report:

Railroad routes from the seaboard to Lake Erie.	Maximum grade in feet per mile,	Miles to Cleaveland,	Miles to Erie,	Miles to Dunkirk,	Miles to Buffalo,
From Boston, via the Massachusetts railroads, and the railroads from Albany to Buffalo,	80	731	611	561	521
From New York, via the Hudson river, and the N. York and Erie railroad to Dunkirk,	60	640	520	470	510
From New York, via the proposed New York and Albany railroad, and the railroads from Albany to Buffalo,	80	677.71	557.71	507.71	467.71
From New York, via the New Jersey and Philadelphia and Harrisburg railroads, and the proposed railroads from Harrisburg to Pittsburg, (by the middle route,) and from Pittsburg to Cleaveland,	45	552	672	722	762
From Baltimore, via Baltimore and Ohio railroad to Pittsburg and the proposed railroad from Pittsburg to Cleaveland,	84	467	587	637	677
From Philadelphia, via Philadelphia and Harrisburg railroad, and the proposed railroads from Harrisburg to Pittsburg, (by the middle route,) and from Pittsburg to Cleaveland,	45	467	587	637	677
From Philadelphia, via Philadelphia and Harrisburg railroad, middle route to Conemaugh, thence via Freeport and Meadville to Erie,	52.80	585	465	515	555
From Philadelphia, via Reading, Little Schuylkill, Catawissa and Sunbury and Erie railroads to Erie,	60	555	435	485	525

NOTE.—From each port on Lake Erie where the railroad lines terminate, to the port to which the distance is marked in the table, the distance has been taken by the Lake.

With the Report of the Engineer, the Board received a map on a reduced scale (explanatory of the above table,) which exhibits in the clearest manner, all the railroad routes from Lake Erie to the seaboard. This map has been drawn with the view of annexing it to the printed Report, and the Board would recommend it to the attention of the Legislature, as the information which it contains has been collected with great care, and will lead to a better understanding of the projected improvements by the railroad from the Lakes and the Ohio river, to Boston, New York, Philadelphia, and Baltimore.

The proposed surveys for the improvement of the Northern and Southern routes, are also marked on this map, together with the contemplated connection between Harrisburg and Pittsburg, by means of the Cumberland Valley and Franklin Railroads, and the projected roads from the Franklin Railroad to the Baltimore and Ohio Railroad below Hancock on the Potomac river.

The first of these connections is formed by a route examined by the Engineer this season, which leaves the Franklin Railroad below Chambersburg, and passing through Mercersburg, strikes the Baltimore and Ohio Railroad about six miles below Hancock. The length of new road necessary to form this connection was estimated at 33 miles, and the distance from Harrisburg to Pittsburg, by this route, will be 302 miles.

The second connection is from the terminus of the Franklin Railroad at Hagerstown, to the point where the Baltimore and Ohio Railroad strikes the Potomac river, 10½ miles below Hancock. The length of new road required to form this connection has been estimated at sixteen miles, and the distance from Harrisburg to Pittsburg, by this route, will be 313¼ miles.

The object of the Board in noticing these connections, between the Baltimore and Ohio Railroad, and the continuous railroads now in operation from Hagerstown and Chambersburg to Philadelphia, is to call the attention of the Legislature to the rapid progress of the Baltimore and Ohio Railroad, which it is believed will be finished as far as Cumberland next fall. As soon as the cars commence running from Cumberland to Baltimore, the travel from the West via the Ohio river and Wheeling, destined for Philadelphia, will pass through Baltimore, thus cutting off the most important item in the receipts of the railroads constructed within the borders of our own State.

The Board directed a reconnoisance to be made for the improvement of the descent on the western side of Laurel Hill, which was one of the most objectionable features of the Southern route; but the result of the reconnoisance has shown that although the descent may be effected in a shorter distance than was required on the route located by Mr. Hage, yet the difficulties to be surmounted in the passage of Chesnut ridge, and the increase of distance thence to Pittsburg, appear, from the knowledge obtained by the Engineer during the examinations, to place the route by Jacob's creek upon an equality with the one already surveyed, and if any superiority does exist in the Jacob's creek route, it can only be determined by careful surveys.

The Northern route, with its *present location*, cannot be fairly placed in competition with the middle route; but the result of the reconnoisances made this season, with the view of carrying the line from the mouth of the Bald Eagle creek, up the West Branch of the Susquehanna, to its source, and thence descending the Two Lick to its junction with the Black Lick, where the middle route will be intersected 48½ miles east of Pittsburg, prove that although the distance will be increased over the route as now located, yet the rise and fall, and the gradients, will be so much reduced, as to make the comparison between the northern and middle routes more equal.

By a reference to the report of the Engineer, under the head of the northern route, will be found a comparison between the distance from Dunkirk on Lake Erie, to New York by the New York and Erie railroad, and the Hudson river, and between Dunkirk and Philadelphia, by the New York and Erie railroad to Elmira; and thence by the Williamsport and Elmira railroad, the portion of the northern route between Williamsport and Harrisburg, and the Harrisburg and Philadelphia railroads.

From this comparison, it appears that, by the shortest route surveyed on the New York and Erie railroad, Elmira is one and three-quarter miles further from New York than it is from Philadelphia, and that the route through Pennsylvania possesses the advantage of having no gradients exceeding 45 feet per mile, whilst on the New York and Erie railroad, the grades rise as high as 60 feet per mile.

By constructing a railroad from Harrisburg to Williamsport, 91½ miles, (estimated to cost for a single track, with necessary turn-outs, depots, &c., $1,785,984,) and finishing the Williamsport and Elmira railroad, (estimated to cost for its completion, $740,000,) Philadelphia will possess a communication by continuous railroad to Elmira, and thence by the Chemung canal and Seneca lake, to the Erie canal, and the great chain of railroads now completed from Buffalo to Boston.

The following table, compiled by the Engineer, will exhibit the rise and fall, length, maximum gradient, and the estimated cost of each route surveyed from Harrisburg to Pittsburg. The estimates have been prepared for the formation of a road bed for a double track of railway, but laid with a single track, with the necessary passing places, depots, &c. Also for the graduation of the road bed for a single track on the middle route.

NAMES OF ROUTES.	Aggregate rise in feet.	Aggregate fall in feet.	Distance in miles and decimals.	Highest gradient in feet per mile.	Total cost of road graded for double track, with single track laid, and including water stations, depots, and land damages.
Northern route, by Emigh's Gap, - - -	2,840.51	2,840.51	320.61	45	$10,867,952
Southern route, by Hage's line, surveyed in 1838, including the Cumberland Valley Railroad, - - - -	6,055.00	5,320.00	291.50	60	11,107,431
Middle route, by the Stone Mountain and Black Lick, -	3,058.23	2,631.23	229.57	45	9,496,709
" " " Conemaugh, - -	2,974.17	2,547.17	237.13	45	9,361,110
" " Kishacoquillas and Black Lick, - -	2,807.53	2,380.53	240.80	45	8,845,240
" " " Conemaugh, - -	2,723.47	2,296.47	248.36	45	8,708,869
Middle route, graded for a single track,					
" by the Kishacoquillas and Conemaugh, including rail-way, depots, &c. - -					7,066,043
" " " Black Lick, " " - - -					7,358,535
" " Stone Mountain and Conemaugh, " " - - -					7,429,690
" " " Black Lick, " " - - -					7,721,395

The Macadamized road from Chambersburg to Laughlinstown, (the survey of which was authorized by the Act of May, 1841,) has been estimated to cost $1,082,017. The road has been located with a view of confining the gradients to two and a-half degrees, and the estimates have been predicated upon the formation of a roadway of the very best construction, and on the plan approved of by the most eminent Engineers in Europe.

The Board refer to the Report of the Engineer for the particulars of the estimates, and for a full description of the located line, and the manner in which it is proposed to construct to stoneway:

TOLLS.

Amount of tolls collected at the several offices on the canals and railroads of the Commonwealth of Pennsylvania, from Nov. 1, 1840, to October 31, 1841:

CANAL TOLLS.

Easton,	$46,625 00
New Hope,	2,254 85
Bristol,	10,775 03
Columbia,	99,871 55
Portsmouth,	18,246 83
Harrisburg,	26,849 85
Newport,	5,933 16
Lewistown,	14,357 08
Huntingdon,	6,460 73
Hollidaysburg,	68,436 00
Johnstown,	67,601 69
Blairsville,	2,194 74
Freeport,	3,432 41
Alleghenytown,	42,336 87
Beaver,	3,653 05
Franklin,	314 48
Liverpool,	11,105 40
Northumberland,	30,929 20
Williamsport,	8,068 70
Dunnstown,	11,762 40
Wilkes-Barre,	8,446 19
Berwick,	15,906 54
Columbia out-let lock,	8,357 50
Portsmouth out-let lock,	909 71
Portsmouth Bridge, Swatara,	620 60
Bridge at Duncan's Island,	3,070 66
Aqueduct at Duncan's Island,	50 00
Aqueduct at Kiskiminitas,	353 36
Aqueduct at Pittsburg,	969 63
Junction,	2,194 58
	$522,087 79

RAILWAY AND MOTIVE POWER TOLLS.

	Railway.	*Motive Power.*
Philadelphia,	$112,416 42	$101,541 34
Paoli,	3,244 42	1,672 83
Parkesburg,	12,293 07	13,115 57
Downingtown,	2,812 75	3,050 13
Lancaster,	25,186 43	27,691 82
Columbia,	59,396 13	68,837 78
Hollidaysburg,	37,538 73	43,732 10
Johnstown,	22,396 14	39,993 18
Schuylkill Viaduct,	483 39	
	$275,767 39	$299,634 71

RECAPITULATION.

Canal tolls,	$522,087 79
Railway,	275,767 39
Motive Power,	299,624 75
Total amount of canal, railway and motive power tolls,	$1,097,489 93
Deduct drawback on flour,	17,593 90
Actual receipts,	$1,079,896 63

Amount of tolls collected at the several offices on the canals and railroads of the Commonwealth of Pennsylvania, for the month of November, 1841:

CANAL TOLLS.

Easton,	$15,088 69
New Hope,	825 35
Bristol,	2,681 53
Columbia,	11,370 49
Portsmouth,	1,967 84
Harrisburg,	2,555 53
Newport,	716 67
Lewistown,	1,933 75
Huntingdon,	782 86
Hollidaysburg,	5,009 67
Johnstown,	6,046 43
Freeport,	232 36
Blairsville,	443 31
Alleghenеytown,	3,610 01
Beaver,	601 48
Franklin,	304 40
Liverpool,	2,299 69
Northumberland,	5,032 74
Williamsport,	659 65

Dunnstown,	1,145 34
Wilkes-Barre,	1,977 20
Berwick,	2,840 76
Columbia out-let lock,	1,418 62
Portsmouth bridge, Swatara,	6 40
Bridge at Dunean's Island,	167 86
Junction,	519 42
	$70,240 95

RAILWAY AND MOTIVE POWER TOLLS.

	Railway.	*Motive Power.*
Philadelphia,	$11,268 65	$11,010 63
Paoli,	244 34	110 87
Parkesburg,	931 67	1,014 36
Downingtown,	326 65	317 78
Lancaster,	1,627 79	1,774 90
Columbia,	4,292 93	5,140 22
Hollidaysburg,	3,943 36	5,059 90
Johnstown,	1,837 32	3,275 97
	$24,472 81	$27,704 63

RECAPITULATION.

Canal tolls,	$70,240 95
Railway,	24,472 81
Motive Power,	27,704 63
Total amount of eanal, railway and motive power tolls,	$122,418 39

REPAIRS.

Amount drawn from the Treasury for old debts and repairs for the year commencing Deeember 1st, 1840, and ending November 30th, 1841:

Delaware,	$69,770 91*	
Columbia railroad,	99,324 59	
Eastern division,	35,224 91	
Juniata division,	52,207 88	
Portage railroad,	15,098 67	
Western division,	38,403 26	
Beaver division,	27,000 00	
French ereek,	6,884 28	
West Branch,	33,785 48	
North Braneh,	74,907 77	
Susquehanna,	29,572 18	
		$482,179 93

* To whieh add $46,063 34, drawn from the Treasury proper.

STATEMENT of the amount due for labor and materials furnished, and to contractors on the several finished and unfinished lines of the public improvements:

FINISHED LINES.

Delaware division, (exclusive of undrawn balance of specific appropriation,)	$102,144 28
Columbia railroad,	100,207 30
Eastern division,	25,921 67
Juniata division,	73,029 77
Portage railroad,	48,760 00
Western division,	56,497 40
Beaver division,	27,449 16
Shenango line,	4,000 37
West Branch division,	17,924 77
North Branch division,	131,644 61
Susquehanna division,	26,000 00
Total on finished lines,	$613,579 33

UNFINISHED LINES.

Erie extension,	$574,406 23¾
North Branch extension,	389,676 42
Wiconisco canal,	26,753 79
Total on unfinished lines,	$990,836 44¾
Amount due on finished lines,	613,579 33
Total amount due on finished and unfinished lines,	$1,604,415 77¾

The large amount due for repairs, is principally to be ascribed to the fact, that on many of the lines of improvement, the wooden superstructures had so far decayed, as to render all further attempts to repair them impracticable, and they had to be renewed throughout. This was particularly the case on the North Branch, as before stated.—It is moreover to be ascribed to the unprecedented freshet on the Delaware in January last, the renewal of 12 miles of the North track of the Columbia railroad, and the refusal of a large number of the banks to accept of the provisions of the Act of the 4th of May last, providing for the payment of the debts then due, and for current repairs, by which the sum of nearly $300,000, appropriated to those purposes, has not yet been available.

At the opening of the navigation last spring, the services of six Supervisors on the finished lines were dispensed with—the pay of Principal Engineers reduced from $2,500 to $2,000 per annum, and their respective corps diminished to the least possible number which the operations of the year would permit. From the superior state of repair in which the canals and railroads of the Commonwealth have

been placed through the active exertions of the officers having them in charge, even amidst the discouraging circumstances which have surrounded them, attendant upon a want of funds, it is confidently expected that a still greater reduction may be made the ensuing spring.

The amount required for repairs during the year 1842, will also be greatly diminished—it is supposed by the Board that two hundred thousand dollars will be sufficient for that purpose.

The following statement shows the estimated amount required to complete the several lines of canal and railroad under contract, exclusive of debts due Nov. 30, 1841:

Erie extension,	$ 536,142 46¼
North Branch extension,	1,298,416 03
Wiconisco canal,	81,836 00
Amount required for work yet to be done,	$1,916,394 49¼
To which add the amount due Nov. 30, 1841, to contractors for work done on Erie extension,	574,406 23¾
North Branch extension,	389,676 42
Wiconisco canal,	26,753 79
Whole amount required to complete and pay debts,	$2,907,230 94

STATEMENT,

Showing the amount drawn from the Treasury for all purposes of Internal Improvement, for the fiscal year ending 30th Nov. 1841:

For repairs,	$187,941 93	
" " due prior to 1st Feb. 1839,	6,520 94	
" " " " 1st Nov. 1840,	228,705 87	
		$423,168 74
" damages,		24,192 50
" new work on old lines, &c.,		25,719 03
" debts due on Sinnemahoning extension,		624 00
" motive power,		298,518 98
" survey railroad Harrisburg to Pittsburg,		8,300 00
" Arch, Grant's hill tunnell,		1,783 83
" construction of new work,		529,962 65
" repairing bridges and building feeder dams,		4,765 00
" road along towing path,		40 00
" north track,		32,705 38
" reservoirs,		30,705 00
" forfeited percentage,		194 28
" repairs on Delaware division,*		59,011 19
" ropes, locomotive engines, &c.,		41,834 93

*In addition to this amount, the sum of $46,063 34 has been drawn from the Treasury proper, for repairing the Delaware division, in pursuance of the resolution of the 11th Feb., 1840. As it did not pass through the canal treasury it is not included in the above.

OF APPROPRIATIONS.

The Board recommend the following appropriations for the ensuing year:

Erie extension, to pay debts due, and complete,	$1,110,548 70
North Branch extension, to pay debts and prosecute the work during current year,	1,000,000 00
Wiconisco canal, to complete,	108,590 00
Reservoirs,	168,000 00
Repairs on French creek feeder,	50,000 00
To pay debts due for repairs, including north track,	613,579 33
Repairs for current year,	200,000 00
Damages,	25,000 00
New work on finished lines,	25,000 00

The Pennsylvania line of improvement is the most central, the most direct, and the shortest route, from the Ohio river to the cities on our Atlantic sea-board; and it only remains to make it the *cheapest*, in order to make it the common thoroughfare, and secure the trade of the great region of the Ohio valley.

To attain this object, various means and expedients have been suggested. It is a great *desideratum* to make our public works productive, and our trade profitable. The most certain method of effecting these purposes, is, to throw open the whole line of our improvements, and to induce individual competition. This may be done by offering facilities and opportunity to all classes of men, to engage in the enterprize of carrying produce and freights on our public works, instead of bestowing their tolls upon tavern keepers, and their toil upon turnpike roads. Let them be provided with the means of loading their boats with the various products of the west at *Pittsburg*, and, without unloading, let them lay down their freight at *Philadelphia*, the place of its final destination. This *can* be accomplished: and it will most effectually prevent collusion among carriers—do away all combinations for establishing and sustaining high rate of carriage, and thereby convert our desevered improvements into a chain of such continuity as will enable the same *carrier*, with the same *craft*, and the same *cargo*, alternately and regularly to arrive at, and depart from, the two great emporiums at the extremities of our line.

The past season, it is true, has been unpropitious to this object. And the uncertainty of the navigation of the upper Ohio has been one great cause of the diversion of trade from the Pennsylvania improvements. The past season has been remarkable for an unusually low stage of water, which commenced at a very early period of our business season, and continued down to its very close.

To prevent the interruption of the trade of the Ohio river, and the consequent dimunition of the business on our canals, a plan has been adopted for a new structure of steamboats to ply on that river, which are adapted to the lowest stage of water, and which, it is believed, will be fully competent to do all the business that will be afforded by the Ohio, during the next and succeeding years. The "Marion" is a

specimen of this class; and her success has afforded a test of the experiment which places their utility beyond question or controversy. Several of this kind of boats have been already constructed: they are of a capacity to carry from forty to fifty tons, either in ascending or descending that river. They are built exclusively for *freight*, and with an especial and direct reference to keeping up the trade through the channel of our canal from Pittsburg to Philadelphia. We are happy to be able to state, for the information of your Excellency and the Legislature, that we have the assurance of several of the most enterprising men in the west, that arrangements have been made for such a number of this description of steamboats as will be amply sufficient to do the entire business of the Ohio river during the coming season, and that they will be ready to co-operate with the boats on our canal at an early period.

The magnitude of the business within the possible influence of the Pennsylvania Improvements may, in some measure, be appreciated by contemplating the extent and character of the region of country to which they present, at a slight excess of expense, the most eligible and the safest channel for its immense commerce in merchandize and domestic products. The steamboats now in commission on the western waters number nearly four hundred, about one-fourth of which are owned at, and regularly trade to the Pittsburg district. They are of all classes, adapted to the navigation of all the rivers tributary to the Mississippi; and it is the constant practice of their enterprising owners to send them freighted from Pittsburg to the remotest accessible ports on the Missouri, Mississippi, Illinois, Arkansas, Wabash, Tennessee, Cumberland, Green, Kentucky, Red, and Kenhawa rivers. It is very common, indeed, for boats to go full freighted to Independence, on the Missouri, to Galena, on the Mississippi, or Peora, on the Illinois; and, when the condition of the river is favorable, the freight for the whole distance of eighteen to twenty-five hundred miles rarely exceeds seventy-five cents per hundred pounds, and does not generally average over forty cents to St. Louis.

If the rate of freight westward on our canals was reduced to one dollar per hundred pounds on dry goods, and seventy-five cents on heavy goods generally, and those rates were not liable to sudden advances, it is idle to suppose that our works could accommodate the amount of tonnage that would seek through them its destination in the western and south-western States. The steamboats returning from the towns in the "Far West," with the vast agricultural and other products of those fertile regions, would carry back the tobacco, wheat, pork, bacon, cotton, hemp, lead, peltries, &c., at rates so low, that, from the remotest point referred to, through the whole line to Phiadelphia, the entire cost of freight would not exceed, probably, one dollar per hundred pounds. We are informed, indeed, that this was exemplified during the last spring in several instances of Pittsburg steamers receipting at Nashville, Tennessee, and Huntsville, North Alabama, for cotton and tobacco, engaging to deliver the same in Philadelphia, *via* our canals, at one dollar to one twenty-five per hundred pounds.

The reasonable and equitable rates of transportation, which ought, under some regulation, to prevail on the Pennsylvania improvements, would at once render all these great valleys tributary, and all these steam vessels auxiliary to the complete success of our system of improvements. And thus we should subserve all the purposes of their original construction; enrich the public coffers—establish on a firm basis the commercial and manufacturing prosperity of Philadelphia and Pittsburg, and diffuse benefits and blessings throughout the Commonwealth.

Among the considerations which have led to a conviction that a modification and change of the policy hitherto pursued, should be introduced, are the following:—The great object of the Legislature and people in beginning and carrying on to completion the vast system of Internal Improvements now owned by the State, was to secure and perpetuate to Pennsylvania the carrying trade between her own and the contiguous sea-board and the Ohio valley. This was fully enjoyed, and was in no danger of being lost while our artificial facilities consisted only of *common* roads and turnpikes. But, when it became the policy of neighboring States to construct canals, in order to overcome the advantages of our geographical position and free turnpikes, Pennsylvania resolved, by an almost unanimous sentiment, to embark in her great system of canals and railroads, to connect the waters of the Delaware with those of the Ohio and the Lakes. A system more costly and gigantic than is elsewhere to be found in this or any other country.

The primary objects have been accomplished so far as the *construction* of the works is concerned. But it remains for the wisdom and forecast of its founders, and early friends, to be borne out and confirmed by the full and complete attainment of all the objects contemplated. The main line of works has been in operation for several years, and the annual revenue has thus far fallen short of the just expectations of the public. We believe that there has been no one year during which *four times* as much tonnage might not have been passed through them, and even a still greater increase than that may now be carried, at comparatively small expense. There is but one way of accounting for this failure in business and revenue. It is, that the *prices of freight* have been so high as to give to *other* channels of transportation an advantage and preference over those of Pennsylvania. To remedy this, we must in some way effect a reduction of the customary rates of freight. To accomplish this, is the only difficulty. The alternate succession of railroads and canals, that characterize our works, gave rise to a mode of transportation, necessarily much more expensive than is incurred on other routes, where the same kind of interruptions do not exist. Depots and numerous agents are required at the transhipping places, and large investments of capital are needed to furnish the requisite supply of boats and cars to do the business.—The current expenses of keeping up so extensive an organization, is of course very great; and in order to pay these enormous charges, several proprietors of lines have thought it necessary to combine for the purpose of fixing high rates of freight during the first months of the

season, when, by reason of other routes not being open, ours is necessarily crowded. It is, probably, in consequence of this policy on the part of carriers, that the trade so generally leaves us when other routes become accessible and available. The effects of this practice of charging inordinate rates on the early spring business, are manifestly injurious to trade, and prejudicial to the public interests. It raises a suspicion of unfairness against us, and it excites a feeling of opposition from which our business suffers loss during all the balance of the season. It produces, also, an impression that we have no fixed or regular standard of rates, but that our whole line is subject to the capricious changes and fluctuations of seasons, and interested collusions.

It seems not only proper, but *necessary*, under these circumstances, that some mutual understanding should take place between the carriers and the State authorities, predicated on a just and equitable revision of the tolls; an abatement of the evils of the present carrying system; and such a reduction of the rates of freight by the several transporters, as will render it the *interest* of the business community to adopt the Pennsylvania Line, as the *cheapest*, as well as the *shortest* and *best route*.

In order to effect this, the rates of freight must be *fixed* and *permanent*. At least certain *maximum* rates should be at once agreed upon and extensively made public, as early as possible; and these rates should be so low, as to make the route as cheap at least, as any other, for all produce passing Eastward, and all merchandize passing Westward, *from the commencement to the end of every season*.

It is confidently believed, and the opinion is corroborated by the most intelligent and experienced traders and merchants, that the result of this would be an ample supply of tonnage for the full and constant employment of all the stock now owned on the canals and railways within this Commonwealth.

There are no official data for computing the tonnage of heavy merchandize and produce with the contemplated and legitimate range of the Pennsylvania works. But the assertion is confidently made, that even an inconsiderable reduction in the prices of transportation, would cause a diversion of the trade of the Ohio river towns alone, to an amount surpassing greatly any whole season's business hitherto done by any of our transporters. It is believed that all this can be accomplished by prudential and reciprocal arrangements between the Legislature, the Commissioners, and the carriers, and with great mutual advantage to the interests of the Commonwealth, and of all who are concerned in transportation. It is to be regretted, however, that any such arrangement is necessary. That it is so, is owing to the want of continuity, which distinguishes our works from others.

In order to produce results, which all admit to be vitally important, (we mean an increase of business, and a consequent increase of revenue from our public works,) we know of no plan more likely to effect these objects, than to *increase* competition and to *diminish* the costs of transportation.

To dispense with expensive agencies on the line of our canals, is a matter of primary importance. The more effectual, if not the only

way, of doing this, is to place the trade within the power and reach of individuals of limited means, by placing trucks on our railroads at the expense of the State, and thus afford them the facilities of a continuous and unbroken carriage over the whole route from Pittsburg to Philadelphia.

The portable and section boats which are now in use upon the line would, it is believed, do a profitable business at reduced prices of freight, if managed by individuals instead of companies. This plan has been heretofore recommended by the Canal Commissioners, and we believe that its adoption is desired by many of our enterprising citizens, who will at once give it a trial, as a means of emolument and of regular employment.

To this end it will be necessary for the State to provide the trucks and carry the sections over the Portage road at a reasonable charge. Individuals of small capital would thus be enabled to become carriers; their number would rapidly increase, and instead of some ten or twelve distinct proprietorships, between whom combinations are easily effected, we should have some hundreds of distinct owners—no combinations—a more rigid economy—an active competition—our works would be assimilated to others in their attribute of continuity, and we should, it is believed, before many years, have to increase their capacity in order to accommodate the trade that will press to and from the sea-board by the Pennsylvania route.

That monopolies exist in the carrying trade upon the Pennsylvania improvements, will not be denied—that they tend to prevent an increase of business—to restrict the operations and curtail our resources, are matters admitted and established. After mature deliberation, therefore, and many anxious inquiries on the subject, we are decidedly of the opinion that the real and *only* cause of the unproductiveness of our public works is, the *high prices charged* for transportation, and that it is practicable to adopt efficient remedies against the deleterious effects of the present policy. One, and the most important of these remedies, is exclusively within the control of the Legislature. It is to invite and induce competition, by enabling any and all persons who are able to procure and fit out a portable boat, to become a carrier on the line of our improvements. It should be an additional incentive to the adoption of this measure by the Representatives of the people, that, while it will tend to reduce the public burthens, it will encourage and stimulate individual enterprize—foster popular rights, and promote the general prosperity of the citizens and of the Commonwealth.

As the Pennsylvania canals are open from four to six weeks earlier than those of New York, we may reasonably suppose that portable boats would be built and used on the Ohio canal. They could be loaded there, make a trip to Philadelphia and *back* again before the New York canals would open. And is it not likely that much of the produce that passes on the Ohio canal to Cleaveland, and there awaits the breaking up of the Lakes, would be sent to Philadelphia, if boats *could* pass directly from that canal, through ours to Philadelphia? And if such diversion of produce could be made, the merchandize for the region whence that produce is sent, would, of course, be purchased

at Philadelphia, and furnish a return cargo for that description of boats. Every change like this in favor of our route, not only enures to the benefit of the route itself, but incidentally it conduces to the commercial prosperity of all cities and towns *from*, *through*, and *to* which such goods and products are passed.

In calling again the attention of the Legislature to the subject of portable boats, we do it from a conviction that it is eminently worthy of their consideration and of legislative interposition. There cannot be a doubt on the subject, that the principle of "free trade," upon the whole extent of our public works, will best subserve the objects of our improvements, and most effectually promote the public interests. It will increase the amount of trade; add to the revenue of the State; counteract the effects of combinations; prevent monopolies; furnish the means of individual competition, and open a channel for industrious enterprize that will yield a double and a reciprocal blessing, viz: to the Commonwealth and to her industrious, enterprizing citizens.

Regarding, therefore, the pressing emergencies of the State, and the embarrassment of the times, and being anxiously solicitous to make our public works more productive and prosperous, we have deemed it our duty to be thus urgent and emphatic in the manner of presenting this subject to the consideration of the Representatives of the people.

Another subject requiring the attention of the Legislature, which has heretofore been urged by the Canal Commissioners without effect, is, the carrying of passengers on our State railroads. One of the principal sources of profit on all railways in this country, and, we may add, in all countries, is the fare accruing from carrying passengers. Indeed, it has been a matter of surprize, that the State should so long have neglected to avail herself of advantages to which she is fairly entitled, and which would tend so certainly to enrich her impoverished coffers. The Commonwealth should at once put on her own passenger cars, and transport all passengers on the Columbia and Philadelphia and Portage railroads; which can be done at a very trifling expense—the cost of cars being the principal additional expenditure required. The State agents who are now employed to count the passengers could, under proper regulations, collect the fare, and the number of officers would, therefore, not be greater than at present; while the receipts on the Columbia Railroad would thereby be increased more than $50,000, and on the Portage Railroad more than $10,000 per annum. At present, the owners of the several lines of passenger cars, on an expenditure of a few thousand dollars, in all not amounting to more than $30,000 of a permanent investment, realize a clear profit of a much larger sum than is made by the State on an investment of millions. This should be corrected, and the Canal Commissioners earnestly call upon the Legislature to take this subject into consideration, and make immediate provisions by law for remedying the evil. All of which is respectfully submitted.

EDW. B. HUBLEY,
WILLIAM F. PACKER,
JOHN B. BUTLER,
Canal Commissioners.

REPORT

OF

THOMAS TUSTIN,

Superintendent Motive Power, Columbia Railroad.

To the Board of Canal Commissioners:

GENTLEMEN:—The undersigned begs leave herewith to submit his first annual report of the operations on the Columbia and Philadelphia railway, from the 1st December, 1840, to the 30th November, 1841, inclusive.

During the winter of 1840–41, the road was blockaded by several heavy snows, yet very little detention was occasioned, which may be ascribed to the attention and energy shown by the Supervisors and others engaged in the service of the State. On the breaking up of the frost in the spring, there was not much detention to the business, nor so much damage done to the locomotives and cars as usual, on account of the road having been put in good condition, and ample preparation having been made by inserting cross-ties, where most wanted, during the previous year.

The business of the road—the transportation of passengers as well as merchandize—during the whole of the past fiscal year, has moved along regularly, and as much to the satisfaction of all engaged on the road as could be expected, where there is such a diversity of interests to satisfy.

Statement No. 1, will show the earnings of the Motive Power during the year, and the expenses incurred; from which it will be seen that it has more than maintained itself, there being a balance in its favor of $22,235 43, although $4,319 80 were paid for a rope for the Schuylkill inclined plane, for which, specific appropriations have heretofore been made; and without considering the very large stock of fuel now on hand, the cost of which is included in the expenses of the year, and amounts to $19,485, for wood, and $14,664 for coal, which exceeds the value of the stock on hand on the 1st of December, 1840, at the time I took charge of the motive power,

$24,469. The difference between the value of the stock now on hand and that at the time I took charge of the motive power, with the cost of the rope for the Schulkill plane, added to the above amount of $22,234 43, as shown in statement No. 1, would exhibit a profit of $51,022 51.

The receipts for the use of the motive power during the past year, are not so great as was expected they would be. This is accounted for by the fact, that the Ohio river was so low for an unusual length of time, that large quantities of goods were shipped from this city to the West, via New Orleans and the New York and Erie canal; and, also, by the fact that the tolls, via the Tide Water canal, are less than by the railroad, and consequently large quantities of heavy goods were shipped by that route, which otherwise would have gone by the railroad. This is referred to merely for the purpose of drawing the attention of the Board to the subject of a reduction of toll on some heavy articles, which I think should be done; and also, of offering further proof of the impolicy of first making improvements at the expense of the State, and afterwards incorporating companies to compete with them, which it is hoped will be studiously avoided hereafter.

Statement No. 2, exhibits the amount of money drawn by me from the State Treasury, and also the amount expended.

Statement No. 3, shows the names and number of the locomotive engines now on the road, and their present condition, together with a statement of the performances of each during the year.

Statement No. 4, shows the cost of maintaining the Parkesburg shop, together with a statement of the amount of the pay of engineers, of locomotive engines and firemen, and the average number of each for every month during the year.

Statement No. 5, shows the amount of stock on hand at the Parkesburg shop for repairs, and also the value of the tools and fixtures.

During the past year I erected at Parkesburg a small brass foundry, the cost of which has been paid out of the motive power fund, and which I find will save a great deal in the expenses for bearings, packing rings, &c. I also fitted up an old engine, which had been out of use for years, with a circular saw, for the purpose of sawing wood, which answered exceedingly well while the engine lasted, but it was so nearly worn out, that it is now useless to do any more repairs to it. When in successful operation, the sawing of the wood cost about 40 cents per cord, which by hand cost 87½ cents to $1 00.

One of the heaviest items of repair, has heretofore been the replacing of the driving wheels and their tire, which is put on of wrought iron. This expense, I think, will be in a great measure diminished. On the 15th September, the engine "Andrew Jackson," came out of the shop with a pair of cast iron driving wheels, and has been running ever since, hauling as heavy trains as it did with the wrought iron tire, and working in every respect as well. The cast iron drivers will not cost as much as the others, by about three hundred dollars for each sett; will be more durable, and will not require more than one-fifth the time to fit on a pair, which is a matter of considerable importance in the business seasons of the year, when all the engines are

wanted on the road every day. In this item alone, I estimate a saving of from three to five thousand dollars per annum.

I found, during the past year, at the manufacturing establishment of Mr. William Norris, the boiler and fixtures of a locomotive, which had been sent there in 1835 or 1836, to be thoroughly repaired, and which, somehow, had been lost sight of. This engine I am now having rebuilt, which will cost about two-fifths the price of a new one, and will be paid for out of the motive power fund.

Since the last report of my predecessor, James Cameron, Esq. the relaying of that portion of the north track, between White Hall and the West Chester intersection, has been completed. It has been done in such manner as reflects credit on Mr. Huffnagle, the Engineer, and has proved, as was urged it would, to be of great advantage to the road. If it were possible to complete the re-laying of the North track from White Hall to the head of the Schuylkill Plane, or to make a road avoiding the plane, it would prove to be of still further advantage. Of the two objects, the latter is much to be preferred, but as it was reported upon in detail, by Mr. Huffnagle, in his report of last year, it is useless for me to do more than merely refer to it. There being but a single track for seven miles from Columbia, is also very objectionable; and if the finances of the State were in such condition as to justify it, the second track should be put down.

I have annexed an estimate of the expenses of the motive power for the fiscal year, commencing on the 1st December, 1841, which, it will be seen, falls considerably short of the expenses for the past year. The difference, it will be observed, between the estimate and the expenses for the past year, is principally in the repairs of the engines, fuel, pay of State agents for burden trains, and the cost of horse power. During the past year, I rebuilt ten engines, which cost, on an average, about two thousand dollars each. This year, there will not be more than three or four to re-build, they being, with few exceptions, in excellent order. On account of the large stock of fuel on hand, it will not be necessary to purchase near so much this year, as during the past year. I think of dispensing entirely with the State agents on the burden trains, as I am now convinced, from the reports of the Collectors of Tolls, that the receipts for toll and motive power for passengers riding on the burden trains, does not amount to as much as their pay. By enjoining a little more duty on the Engineers of the locomotives, very nearly all, if not all the toll that is now collected from this source, would be collected at any rate, so that there would be a saving from this source, of from four to five thousand dollars per annum.

I think of ceasing to haul the cars at Columbia from the depots of the transportation lines to the State siding, and enjoining upon the owners of cars to haul them out at their expense, the same as is done at Philadelphia. As soon as the Schuylkill bridge shall have undergone some repairs, so as to make it safe to run the locomotives on it, I will cease hauling the cars across by horse power. In these four items named above, I calculate on a saving the present year, of about

thirty thousand dollars, when compared with the expenditures of the past year. By the practice of a rigid system of economy in the repairs and management of the road, and the adoption of two recommendations I shall make in this report, I am persuaded that the road can be made pay a handsome per centage on its cost over and above the repairs and management, of which it will be seen from a statement that I annex it falls about $———— short for the past year. This can be readily accounted for by the fact that the State makes but a small charge for the use of the road and the motive power, whilst individuals and companies reap all the profits. All the railroads in the country that pay any thing like the interest on their cost are those that are owned by companies who do the transporting of passengers, and, some of them, of merchandize, also, themselves. If this were done on this road, it would increase the revenue derived from it almost incalculably.

Before closing this report I deem it proper to make one or two recommendations, which I think of considerable importance to the interest of the State. One is, that the State should put on the passenger cars, and transport the passengers. During the past year the toll and motive power on the passengers carried in passenger cars, amounted to, $101,220 71

The toll and motive power on the cars carrying them and their baggage amounts to, 14,319 90

Making a total amount of $115,540 61

If the State had the cars, the *fare* for the same number of passengers, at three and three-quarter cents per mile, which is less than the rate charged by those owning the cars that have been used, would amount to $167,204 02

From which amounts deduct what was actually received, say, 115,540 61

And it makes a difference of $51,663 41

In one single year the cars for the whole of the business are estimated to cost as follows:

Eight new *first class* passenger cars, at	$2,500,	$ 20,000
Eight second hand do. for emigrants, at	1,200,	9,600
Six baggage cars, at	300,	1,800
Making a total of		$31,400

The interest on this amount, the repairs, and wear and tear of the cars, may be safely estimated to not exceed twenty-five per cent. on the first cost, which would amount to $7,850. There would be one

brakeman required with each train, (which would be the only additional force required,) making six men at $1 00 per day, which would amount to per annum $2,190. These two amounts taken from the above sum of $51,663 41, would show a clear profit to the State, by putting on the cars, of $41,623 41, on the number of passengers carried during the past fiscal year, in which there were not so many carried as in the same time during some preceding years. In the above calculation I have not, as will be perceived, made any estimate for an increase of passengers from the reduction of fare, which I think may be safely calculated upon as being very considerable.

This recommendation will very naturally be opposed by those interested in the lines now running; but I cannot suppose that *their* interests will be preferred to those of the Commonwealth. The owners of the lines now on, are public spirited, enterprising, and deserving citizens; but is that a reason why their interests should be paramount to those of the State? It may be urged as an objection to this recommendation, that, if it were adopted, the owners of the boat and stage lines would close their offices in Philadelphia, and that the State would be put to the expense of opening offices, and establishing agencies to induce passengers to travel this route, or would, through the exertions of those interested in the route via Baltimore, lose a large number of western passengers, who would be induced to take that direction. The only answer I shall make to this objection is, to name the fact that the lines now running have, for years, had agencies in New York to procure passengers for the route through our State, and if their profits warranted them in incurring that expense in New York, the mere lopping off of their profits on the railroad would not cause them to close their offices in Philadelphia. There will be no difficulty in carrying out the recommendation in detail. The boats and stage lines would have their offices in Philadelphia, and, on receiving the fare through, might give, in addition to the receipt for the passage money, a ticket, to be lifted on the railroad by the State agents; and on these being returned to the Collector of Tolls, he could collect from the agents of the lines the car fare, in the same way tolls are now collected. The Collectors of Tolls should have the general receipt of the fare, and, from way-passengers, the State agents (who, indeed, are now employed to count and return to the Collectors the number of passengers that are carried, so that no additional expense would be incurred for agents or Collectors,) could collect. For the prevention of peculation and collusion, the State agents employed on the cars should be required to file a bond for the faithful return to the Collectors of Tolls of all moneys by them collected, and should render an account monthly, under oath, of the number of passengers carried.

I think I have shown conclusively that as far as dollars and cents are concerned, it is the interest of the State to put on cars. I have also given a faint outline of the mode of managing them in detail; and will conclude by saying, that if the recommendation should be adopted, it will add to the revenue of the Commonwealth, to the safety of passengers, and to the uniformity of the police, with but a small increase of the expenditures.

Another recommendation is, for the State to put on the Columbia and Philadelphia, and the Allegheny Portage railways, trucks for carrying the section boats. Experience has proven that with as many transhipping points as there are between this city and Pittsburg—the management of which are so very expensive—that our improvements cannot compete with those of New York for cheapness, where there is an entire water communication. Neither can our improvements be made so productive to the State as they should be, until some system be adopted which will throw them open to individual enterprize and competition in a greater degree than they now are. It is not that our improvements cost more for repairs and management (for in fact they cost less,) in proportion to their cost of construction, than those of New York, that makes theirs productive, whilst ours are unproductive, but it is because they have expended but a comparatively small amount on works tributary to their main line, and because their whole expenditure has been on works that are open, throughout their whole extent, to individual enterprize and competition in the greatest possible degree. Under the present arrangement it requires a very large capital—not less than fifty thousand dollars—to put on a single daily line between this city and Pittsburg. The consequence of this is, but few lines are in operation; and there being but few, combinations may be found to charge exorbitant rates of freight—And again, this amount of stock, owned in a mass by companies, cannot be managed to so much advantage, nor with so much economy, as if owned in smaller amounts by individuals. If the suggestion of putting on these trucks were agreed to, individuals with just capital enough to purchase a boat and pair of horses could use our improvements between here and Pittsburg—in fact between here and Cleveland—the same as our turnpikes are used by wagons. The result would be, that a much larger amount of stock would immediately be placed on our improvements, and being owned by individuals in small amounts, who would themselves superintend its management, such economy would be observed, and such a wholesome competition created, as would cause merchandize to be carried between this city and Pittsburg for as small a compensation *above* the tolls as is charged on the New York and Erie canal. This would bring the prices of freight, *including* tolls, down to the following rates per 100 lbs.—Say on coffee 80 cts., hardware 90 cts., groceries (not including coffee) $1 00—dry goods $1 10, and other articles in proportion.—It may, however, be urged as an objection that the tracks on the railroads are not wide enough apart to admit the passage of boats as wide as are intended for the Pennsylvania Canal, and hence what may be gained in the saving of expenses at the transhipping points will be lost in the proportion of the toll of the boat, and its expenses for propulsion and management, (which are as much as for a boat of greater tonnage) on the small amount of freight the three or four section boats could carry. This objection I think not well founded, because the four sections of one of these boats could carry twenty-five tons, and I very much doubt whether the largest class of boats that are now used average, during a season, this much: And again, they

could be so constructed as to join them side by side, when in the canal, as well as at the ends. By making this change, from forty to fifty tons could be carried in them, which is as much as the boats now used, carry at any time. The advantages resulting from the adoption of this recommendation would be, not only to keep the prices of freight down to a reasonable charge, which would increase the amount carried over our improvements, and consequently would increase the revenue of the State from that source; but the present very objectionable system of transhipping at the junctions of the railroads with the canals, which drives large quantities of freight from our improvements to other channels, would be abandoned. Again, it has been the custom on our improvements, in the spring and fall of each year, when goods were plenty, for those engaged in the transportation business to increase the rates of freight to an exorbitant price. All the advantage of the increased charge was to them. The State received no more than when prices were very low. If the above suggestion was agreed to, the standard of the rate of tolls might be fixed to be charged when not over a certain rate was charged for transportation; and if the charge for transportation were increased, increase the rates of toll also, so that the State should receive a proportionate advantage from high prices of transportation which might be charged when freight was very plenty. This could not very well be carried out in detail, whilst the present mode of transportation continues, but with the section boats it could be without difficulty.

The indebtedness of the Motive Power is now, as nearly as can be ascertained, about sixty thousand dollars, which is less than it was at the time I took charge of it, by about twenty-seven thousand dollars. If the recommendations I have made, be adopted, I think there is no doubt but the whole of this debt could be paid off in one year.

All which is most respectfully submitted.

THOMAS TUSTIN,

Sup't. Motive Power Col'a. & Phila. Railway.

SUPERINTENDENT'S OFFICE,
Phila. Dec. 1, 1841.

STATEMENT No. 1.

Amount collected for use of Motive Power, from 1st December, 1840, to 30th November, 1841, as per reports of Collectors of Tolls to Canal Commissioners,		$220,853 93
Amount of expenditures and liabilities incurred for the Motive Power during the same period, as per following statement, viz:		
Master Machinist, Clerk and Mechanics at Parkesburg shop, - -	16,515 24	
Materials for repairs of Engines, -	19,467 56	
Mechanics at Repair shop at Columbia,	1,310 61	
do. do. Schuylkill plane,	813 00	
Despatcher and Laborers at Columbia,	1,252 70	
do. Attachers, Engineer and Firemen of Stationary Engine, and Labourers at Schuylkill plane, - -	6,504 75	
do. Engineers, Firemen and Laborers on Schuylkill level, -	2,914 74	
do. at Lancaster, and State agents for burden trains, - -	6,375 80	
State agents on passenger trains, -	4,230 00	
Engineers of Locomotive Engines, -	14,139 25	
Firemen of do. do. -	10,124 06	
Watermen, - - -	7,672 00	
Water companies and individuals for water,	1,224 40	
Sawing wood, - - -	9,164 95	
Coal, - - - -	17,234 26	
Wood, - - - -	41,475 05	
Oil, - - - -	6,261 88	
Repairs of Engines done at manufacturing establishments, - - -	15,263 75	
Miscellaneous, stationary and printing,	1,149 24	
Horse-power on Schuylkill level, at Schuylkill plane, and at Columbia, -	8,679 68	
Superintendent, Clerks, and rent of office,	2,527 50	
Ropes for Schuylkill plane—for which specific appropriations have, heretofore, been made, - - - -	4,319 08	
		198,619 50
Amount of earnings over and above the expenditures,		$22,234 43

STATEMENT No. 2.

Amount received from Treasurer of Board of Canal Commissioners from 1st December, 1840, to 30th November, 1841,		$205,528 41
Amount paid for expenses of Motive Power during same period as per vouchers, filed in Auditor General's office, -	198,023 08	
Amount paid to Pennell, Lenher and Humes, of Lancaster, for Locomotive Engine as per resolution of last Legislature,	7,500 00	
		205,523 08
Balance due Commonwealth, November 30th, 1841, - - - - -		$5 33

STATEMENT No. 3.

Statement showing the cost of the road, the interest on the same, the cost of keeping it in repair, and for management from 1st December, 1840, to November 30th, 1841, inclusive; and the amount collected for Toll and Motive Power during the same period:

Cost of the road, buildings and fixtures, - - - -		$3,983,302 05
Interest on same for one year at 5 per cent. per annum, - -	$199,165 10	
Cost of maintaining Motive Power,	198,619 50	
do. repairs of road, -		
Amount collected for toll, -	219,347 77	
do. do. Motive Power,	220,853 93	
		440,201 70
Deficit,		

STATEMENT No. 4.

Estimate of cost of maintaining the Motive Power on the Columbia and Philadelphia Railway, from December 1st, 1841, to November 30th, 1842:

Master Machinist, Clerk and Mechanics at Parkesburg shop, - -	$15,000 00	
Materials for repairs of Engines, -	15,000 00	
Mechanics at repair shop at Columbia,	1,300 00	
do. do. Schuylkill plane,	900 00	
Despatcher and Laborers at Columbia,	1,300 00	
do. Attachers, Engineer and Fireman of Stationary Engine, and Laborers at Schuylkill plane, - -	6,500 00	
do. Engineers, Firemen and Laborers on Schuylkill level, - -	3,500 00	
do at Lancaster, and State agents for burden trains, - - -	1,500 00	
State agents on Passenger trains, -	4,230 00	
Engineers of Locomotive Engines,	14,000 00	
Firemen of do. do. -	9,000 00	
Watermen, - - -	6,205 00	
Sawing wood, - - -	8,760 00	
Water Companies, and individuals for water,	1,225 00	
Coal, - - - -	10,000 00	
Wood, - - - -	37,500 00	
Oil, - - - -	6,200 00	
Repairs of Engines done at manufacturing establishments, - - -	8,000 00	
Miscellaneous, stationary and printing,	1,000 00	
Horse-power on Schuylkill level, at Schuylkill plane, and at Columbia, -	6,500 00	
Superintendent, Clerk, and rent of office,	2,500 00	
Rope for Schuylkill plane, -	4,000 00	
		$164,120 00

STATEMENT No. 5.

An Inventory of Stock and Materials at the Parkesburg shops, November 30th, 1841:

36	pair truck and tank wheels, complete at $100,	$3,600 00
120	" " hubs, 400 lbs. each, at 5 cts.	2,400 00
36	driving wheel hubs, at $50,	1,800 00
34	tank and truck tire, 150 lbs. each, at 10 cts.	510 00
20	driving wheel " 350 " at 12 cts.	840 00
3500	bushels bituminous coal, at 25 cts.	875 00
20	tons anthracite, " at $6,	120 00
1	Norris' engine truck frame,	400 00
4000	lbs. old copper, at 18 cts.	720 00
6000	" miscellaneous castings, at 4 cts.	240 00
500	" block tin, at 25 cts.	125 00
400	" spelter and lead, at 6 cts.	24 00
9000	" boiler and frame iron, at 7 cts.	630 00
3000	" old spring steel, at 4 cts.	120 00
9000	" bar iron, at 5 cts.	450 00
1800	" stationary boiler, at 12 cts.	216 00
2400	" driving wheel axle iron, at 10 cts.	240 00
6000	" truck and tank " " at 7 cts.	420 00
15000	" miscellaneous wrought iron, at 4 cts.	600 00
2200	" driving wheel springs, at 18 cts.	396 00
870	" Norris' tank " at 15 cts.	130 00
3000	" brass castings, at 30 cts.	900 00
300	" sheet copper, at 35 cts.	105 00
2000	" old brass castings, at 16 cts.	320 00
1600	" cast steel, at 18 cts.	288 00
1000	bushels charcoal, at 8 cts.	80 00
8000	feet oak and ash timber, at 2 cts.	160 00
5000	" white pine boards, at 2 cts.	100 00
200	gallons oil, at 80 cts.	160 00
1	sett Norris' pedestals for tanks,	100 00
1	small stationary engine,	100 00
4	domes, at $30,	120 00
3	bells, at $30,	90 00
2	blowers for anthracite coal, at $50,	100 00
5	crank axles, at $160,	800 00
	Packing yarn, files, locks, hose, paints, oil-cans, nails, &c., &c.	500 00
		$18,779 00

STATEMENT No. 5.—*Continued.*

An Inventory of Machinery, Fixtures and Tools, at the Parkesburg Shops, Nov. 30th, 1841:

1	stationary engine, complete,	800 00
	Shafting, gearing, &c.,	2,000 00
1	circular saw and frame,	100 00
1	large turning lathe,	1,200 00
1	2d size " "	500 00
1	3d " " "	500 00
2	4th " " " at $300	600 00
1	Brass, "	200 00
2	large boring, " at $750	1,500 00
1	screw cutting machine,	500 00
2	drilling, " at $150	300 00
1	punching, "	250 00
1	pair shears for boiler iron,	200 00
1	sett rollers, " "	500 00
20	vices, 1700 lbs. at 15 cents,	250 00
4	sett carpenters' tools, at $50,	250 00
2	" coppersmiths' " at $150,	300 00
1	" boiler makers' "	500 00
4	" blacksmiths' " at $200	800 00
16	" machinists' " at $50,	800 00
8	" blocks, ropes, &c., at $30,	240 00
	Sundry patterns,	2,800 00
	Fixtures for hanging and unhanging wheels,	100 00
	" pressing on "	75 00
	" stretching tire & hooping "	100 00
	" brass foundry, tools, &c., complete,	300 00
1	hot water tank, "	150 00
	Fire engine and hose, "	800 00
	Weigh scales, "	50 00
2	Vail's patent jacks, at $80,	160 00
1	wood lathe,	100 00
		$16,875 00

Tabular Report of Locomotive Engines on Columbia and Philadelphia Railro

NAMES OF ENGINES.	Names of Makers.	Date of Manufacture.	Weight.	Power.	Fuel.	Reported condition, October 31, 1840.	No. from 1840, 30,
1 Atlantic,	In England,	1836,	9 tons.	65 tons.	Wood,	Condemned,	
2 Bald Eagle,	Eastwick & Co.	March 1, 1837,	9½ "	80 "	Bituminous and wood,	Good order,	
3 Baltimore,	Ross Winans,	Feb'y 10, 1837,	10 "	80 "	Anthracite,	do.	
4 Brandywine,	M. W. Baldwin,	Oct'o'r 25, 1835,	9 "	90 "	Bituminous and wood,	Being repaired,	
5 Buchanan, Jas.	H. R. Campbell,	Mareh 1, 1839,	12½ "	110 "	do.	Good order,	
6 Cameron, Simon	Wm. Norris,	" 19, 1839,	10 "	90 "	do.	do.	
7 Clarke, James	M. W. Baldwin,	April 30, 1839,	13 "	110 "	Bit., Anth. and wood,	do.	
8 Conestoga,	"	Feb'y 10, 1837,	12½ "	110 "	do.	Being repaired,	
9 Delaware,	"	Feb'y 17, 1835,	8½ "	80 "	Bituminous and wood,	Good order,	
10 Downingtown,	"	August 4, 1837,	12½ "	110 "	do.	Being repaired,	
11 Enterprise,	Eastwick & Co.	May 22, 1837,	9½ "	80 "	do.	Good order,	
12 Farmer, Wash. Co.	Wm. Norris,	Octo'r 15, 1836,	10 "	90 "	do.	do.	
13 Gay, Ed. F.	M. W. Baldwin,	March 6, 1837,	12½ "	110 "	do.	do.	
14 Hubley, E. B.	"	April 6, 1839,	12½ "	110 "	Bit., Anth. and wood,	do.	
15 Indiana,	"	April 27, 1837,	12½ "	110 "	do.	do.	
16 Iron Grey,	Dotterer & Co.	Sept'r 20, 1841,	8½ "	70 "	Bituminous and wood,	Received since,	
17 Jackson, And.	H. R. Campbell,	March 1, 1839,	12½ "	110 "	do.	Good order,	
18 Juniata,	M. W. Baldwin,	Sept'r 5, 1835,	8½ "	80 "	do.	do.	
19 Keim, G. M.	Dotterer & Co.	April 1, 1840,	11 "	110 "	do.	do.	
20 Keys, Hugh	Pennell & Co.	May 15, 1840,	11½ "	110 "	do.	do.	
21 Lancaster,	M. W. Baldwin,	June 25, 1834,	8½ "	80 "	do.	Ordinary order,	
22 Mississippi,	"	May 8, 1837,	12½ "	110 "	Bit., Anth. and wood.	Good order,	
23 Montgomery,	"	May 15, 1837,	12½ "	110 "	do.	do.	
24 Muhlenberg, H. A.	Dotterer & Co.	Nov'r 1, 1839,	11 "	110 "	Bituminous and wood,	do.	
25 Octorara,	M. W. Baldwin,	April 10, 1837,	12½ "	110 "	Bit., Anth. and wood,	do.	
26 Ohio,	"	Feb'y 8, 1835,	8½ "	80 "	Bituminous and wood,	do.	
27 Old Berks,	Dotterer & Co.	July 1, 1839,	11 "	110 "	do.	Being altered,	
28 Parkesburg,	M. W. Baldwin,	March 30, 1837,	12½ "	110 "	do.	Good order,	
29 Paoli,	"	Feb'y 18, 1837,	9 "	85 "	do.	do.	
30 Packer, W. F.	Ross Winans,	March 1, 1840,	18 "	190 "	Anthracite,	do.	
31 Pequa,	M. W. Baldwin,	April 18, 1837,	12½ "	110 "	Bit., Anth. and wood,	do.	
32 Philadelphia,	"	Nov'r 26, 1837,	8½ "	80 "	Bituminous and wood,	do.	
33 Porter, G. B.	H. R. Campbell,	March 1, 1839,	12½ "	110 "	do.	do.	
34 Pennsylvania,	M. W. Baldwin,	January 3, 1835,	9 "	90 "	do.	Being re-built,	
35 Sampson,	Sellers & Sons,	May 20, 1841,	9½ "	85 "	do.	Received since,	
36 Schuylkill,	M. W. Baldwin,	April 1, 1835,	8½ "	80 "	do.	Good order,	
37 Snyder, Simon	Wm. Norris,	March 14, 1839,	10 "	90 "	do.	do.	
38 Telegraph,	Eastwick & Co.	April 15, 1837,	9½ "	80 "	do.	do.	
39 Virginia,	M. W. Baldwin,	Feb'y 18, 1837,	9 "	85 "	do.	Being repaired,	
40 West Chester,	"	Jan'y 20, 1837,	9 "	85 "	do.	Good order,	
41 Wisconsin,	"	May 26, 1837,	12½ "	110 "	Bit., Anth. and wood,	do.	
42 Westmoreland,	Dotterer & Co.	Nov'r 20, 1841,	12½ "	110 "	Bituminous and wood,	Received since,	

Number of Cars drawn by Kentucky engine before going on Portage Railroad, - - - -

Table showing the cost of labor at Parkesburg shops, and of Eng
from 1st November, 1841. Also the number of days made, an
year for shop hands, and 365 for Engineers and Firemen.

13 Months.	Cost of Shop hands.	Cost of Engineers.	Cost of Firemen.	TOTAL Number of hands each m		
				Shops.	Engineers.	Fi
1840, November,	$1,070 91¾	$1,101 50	$788 12½	28	21	
" December,	1,183 35½	997 00	766 25	29	18	
1841, January,	1,268 86½	1,051 00	864 31¼	33	21	
" February,	1,317 91¾	1,051 81¼	767 12½	40	24	
" March,	1,482 69	1,380 75	928 25	39	30	
" April,	1,463 06¼	1,571 50	1,057 37½	39	33	
" May,	1,339 48¼	1,561 75	994 25	37	31	
" June,	1,604 55¾	1,293 50	769 37½	46	28	
" July,	1,655 20¾	1,026 25	702 50	47	18	
" August,	1,367 35¾	1,005 25	690 00	41	19	
" September,	1,331 86¾	1,049 68¾	838 75	38	23	
" October,	1,247 40¼	1,096 25	947 00	37	23	
" November,	1,354 53¼	1,053 50	771 87½	37	22	
	$17,585 25¾	$15,240 75	$10,912 18¾			

REPORT

OF

W. MILNOR ROBERTS,

Principal Engineer of the Erie Extension.

ENGINEER'S OFFICE,
Erie, Dec. 1, 1841.

To the President and Board of Canal Commissioners of Pennsylvania:

GENTLEMEN:—In obedience to instructions received from Thomas L. Wilson, Esq., Secretary of the Board, I have the honor to present the following report on the Erie Extension of the Pennsylvania Canal.

At the date of my last Annual Report, forty-three miles of the Shenango line were completed, and in use. During the past summer, three miles more, immediately above Greenville, were put in operation; and the canal and locks on the remaining eighteen miles of the Shenango line, including four miles along the Summit reservoir, are finished; with the exception of a small amount of work on three sections. So that the whole of this line will be ready for the water early next spring.

On the Conneaut line, a large amount of work has been accomplished; and it is now in such an advanced stage as to induce a confident hope, that its completion will be hastened by immediate appropriations.

The *Erie Extension* commences at the head of the Beaver division, six miles above New Castle, in Mercer county, and terminates at Erie, 105½ miles distant. It comprises two divisions—the Shenango line, reaching to the summit at Conneaut Lake, *sixty* miles; and the Conneaut line extending thence to Erie, *forty-five and a-half* miles; and also *four* miles of canal or towing path, along the south side of the Conneaut reservoir. The ascent, from New Castle pool to the Summit reservoir, when filled, is 287½ feet, and the descent, thence to the surface of Lake Erie, is 510 feet; making the total lockage 797½ feet.

The Shenango line was located in 1836—the Conneaut line in 1838–'39.

The Shenango Line passes through the valley of the same name, to West Greenville, a distance of forty-three miles, where it leaves the main stream, and follows the course of the Little Shenango for four miles, to the mouth of Crooked creek. Thence to Hartstown, seven miles, it lies on the western slope of the valley of Crooked creek. At Hartstown, the canal enters the Pymatuning swamp, a portion of which, containing about 600 acres, has been cut off from the main swamp, by a water-tight towing-path, and converted into a valuable artificial reservoir, affording an available surplus of upwards of 145,000,000 of cubic feet of water. From the Pymatuming reservoir, to near the summit, the ground is favorable. A deep cut (now finished,) three thousand five hundred feet in length, and varying in depth from ten to thirty feet, terminates the line, which is here merged in the basin of the Conneaut Lake—the towing-path of the main line, along its north-western margin, meeting at the same point the Conneaut line and the continuation or prolongation of the French creek feeder. This is the *junction* of the Shenango, Conneaut and Feeder lines—*sixty* miles from the Newcastle pool, *forty-five and a-half* miles from Erie harbor, *nineteen* miles from Meadville, and *forty-one* miles from Franklin, on the Allegheny river.

The Conneaut Reservoir, which is common to both lines, is the summit level, and forms the principal supply of the Conneaut line and the upper part of the Shenango line. This very important and extensive reservoir, covers twenty-six hundred acres. It is created by embanking around Conneaut Lake, and raising it eleven feet above its present surface, and is to be supplied through a navigable feeder, twenty-one miles long, running from French creek, at a point two miles above Meadville. This feeder was constructed some years ago, but is now very much out of repair; but as the navigation on the Erie extension depends upon it for a supply of water, it must be put in order in time to meet the completion of the main line.

The reservoir, when full, will be seven feet above the bottom of the canal, and will contain 304,920,000 cubic feet of water, which can be drawn off without interfering with the navigation. For detailed calculations, showing an abundant supply for any extent of trade, the Board is respectfully referred to my report of 1839.

The Conneaut Line, commencing at the 'junction,' passes through the lowest part of the dividing ground between the waters of the Ohio and Lake Erie, by a deep cut, two and a-half miles long, and from ten to twenty-seven feet deep. It thence descends along the valley of Conneaut creek, for twenty miles, passing the villages of Powerstown, Marion, Jacksonville, Cranesville, and Lockport. The line then bends in a north-easterly direction, through the narrow valley of Hall's run, crossing Elk creek by a high aqueduct, near Girard. Thence, turning more eastwardly, it continues on the elevated bench of land between the Ridge road and the Lake, (passing Walnut creek by the "big aqueduct,") in nearly a parallel line, till it enters upon the precincts of Erie. It then inclines to the north, and cuts obliquely through

the city, by a succession of locks separated by short pools, to its terminus in the harbor, at Navy Yard run, just below "Reed's pier."

CHARACTER OF THE WORKS.

The canal is similar in dimensions to the other lines in the State, except that on a large portion, there is four feet more water surface.—The lock chambers are 15 by 90 feet. The aqueducts on the Shenango line are 35 feet wide in the trunk, affording ample space for two boats to pass. There are five dams, all on the Shenango line, creating seven and three-fourths miles of slackwater. The locks on the Shenango line, except seven, near the upper end, are built of cut stone, and it is confidently believed that they are superior to any other cut stone locks in the State, in every respect.

On the Conneaut line, which passes through a country widely different from the Shenango valley, the mechanical work has been arranged to correspond with the materials found on the Lake slope. The strata of limestone, sandstone and coal, which are found in the Shenango valley, crop out and disappear as the summit is approached, and in their stead we have the argillaceous slate rock lying generally in thin horizontal beds. On this account the locks on the Conneaut line have been constructed upon the composite plan, with dry rubble walls faced with water-tight plank. The facing of the masonry at the Walnut creek aqueduct, and the out-let locks at Erie, are, however, to be built of limestone, obtained near Sandusky, and transported on the Lake.

Quicksand has been met with on the Conneaut summit sections, and in a few instances, at other points along the line. The highest vein is about six feet above canal bottom. The veins are not continuous to any extent, but appear in spots. Since the completion of a number of sections around the summit, the quicksand does not present as formidable an aspect as formerly, owing to the vast drainage they have effected; and I have no doubt that if funds had been provided to prosecute the three summit sections remaining unfinished, they would have been completed without any serious difficulty during the past season.

For want of an appropriation they have been standing idle upwards of a year.

The aqueducts at Elk and Walnut creeks, are works of considerable magnitude, and for the reason above expressed, no work has been done upon them since spring.

PRESENT CONDITION OF THE WORKS.

SHENANGO LINE.

There are on the Shenango line,

84 Sections—of which three only are unfinished.
44 Locks—all finished.
5 Dams—all finished.
3 Aqueducts—all finished.
11 Towing-path bridges—all finished except one.
24 Waste weirs—all finished.
22 Road bridges—all finished, except two.
47 Farm bridges—all finished, except six.
38 Lock houses—of which 19 are finished.
33 Clearing sections—Conneaut reservoir—7 unfinished.

From the above statement it will be seen that the Shenango line is very nearly finished.

The total estimated cost of the Shenango line, is	$1,749,532 28
The total estimated cost of work done to May 1, 1841, is	1,655,418 17
The total estimated cost of work done to December 1, 1841, is	1,712,282 58
The total estimated cost of work to be done, December 1, 1841, is	37,249 70
The total amount required to prepare the line for the admisson of water, (exclusive of lock houses and fence, which could be finished afterwards,) is	23,249 70

The whole Shenango line would have been entirely completed at this moment, but for the clause in the "Act of May 4, 1841," which prohibits the Board from making any contracts, whether for new work or abandoned jobs. In consequence of this provision in the Act mentioned, section No. 68, which had been abandoned by the Contractor, remains as it was reported last fall. Had this section been prosecuted with even a very moderate force, we could easily have urged the two remaining sections to completion in time to meet it, and the Shenango line would now be ready for the water. As it is, two or three months' work, with a good force, will finish it.

CONNEAUT LINE.

There are, on the Conneaut line,

61 Sections—of which 30 are finished and 31 two-thirds done.
71 Locks—of which 38 are finished, 33 are 7-11 done.
84 Bridges—of which 31 are finished, 18 two-thirds done.
2 Aqueducts—one-third done.
5 Culverts—of which 3 are finished, and 2 one-half done.
50 Waste weirs—not under contract.
4 Stop gates—not under contract.
48 Lock houses—not under contract.

From which it appears that the work on this line also, is very far advanced towards completion.

The total estimated cost of the Conneaut line, is	$1,706,117 20
The total estimated cost of work done to May 1, 1841, is	1,032,833 29¾
The total estimated cost of work done to December 1, 1841, is	1,207,224 43¾
The total estimated amount of work to be done December 1, 1841, is	498,892 76¼
The total estimated amount of work under contract, is	1,613,517 20
The total estimated amount of work yet to be contracted for, is	92,600 00
The total estimated amount required to prepare the line for admission of water (exclusive of lock houses and fences, which could be built afterwards,) is	459,292 76¼

RECAPITULATION.

The total estimated cost of the *Erie Extension*, is	$3,455,649 48
The total estimated cost of work done to May 1, 1841, is	2,688,251 56¾
The total estimated cost of work done to December 1, 1841, is	2,919,507 01¾
Total estimated cost of work to be done December 1, 1841, is	536,142 46¼
The total estimated amount required to prepare the Erie Extension for the admission of water, (exclusive of lock houses and fences, which can be built afterwards,) is	482,542 94¾

The Board are familiar with the circumstances attending the appropriations made during the last session of the Legislature, and must be aware of the difficulty under which this line has labored in consequence thereof. The "Act" of May 4th, appropriated "to pay debts due on contracts for work done until the 1st of May, 1841, on the Shenango line, $250,011 83; and upon the Conneaut line $261,386 05; in all, the sum of $511,397 88."

Now of this amount, the Superintendent has only been able to obtain $178,434 12, and that not without unusual and extraordinary exertions on his part.

In proportion to the amount of debts then due, the sum appropriated for the Shenango line, was much more liberal than that named for the Conneaut line—and more than enough to cover all debts due at *that time* on the Shenango line.

It appears to have been the intention of the Legislature to provide for the entire completion of the Shenango line; but owing to the pe-

culiar wording of the law containing the appropriations, that intention would have been frustrated, so far as payments were concerned, even had not other causes conspired to defeat it. The "Act," it is true, sets apart a liberal appropriation to the Shenango line, but in the very same clause specifies that it is only "*to pay debts due until the first of May.*"

On the Conneaut line, the contractors, during the months of March and April, were urging their work forward with great industry and force, and delivered a large quantity of stone, timber, iron, &c., upon the mechanical jobs, so that, when the work actually done prior to the first of May, came to be carefully estimated, it was ascertained that it exceeded the amount of the appropriation specially set apart.

Now here were two divisions of the *same stem*, whose interests are *identical;* upon one of which there was an inapplicable *surplus* of appropriation, and upon the other, a considerable *deficiency;* and yet, owing to another clause (Sec. 15,) in the same act, neither the Canal Commissioners, nor any other officer, had authority to make any use whatever of the surplus, or to supply the deficiency.

The terms, Shenango line and Conneaut line, are entirely arbitrary. Together, they constitute the Erie Extension—separately, they are nothing. The whole amount of the loan authorized, was not, however, taken by the banks, and, instead of having $511,397 88 to be paid out for old debts, this line has only received, during the past year, the sum of $178,434 12.

Under these discouraging circumstances, the contractors, sustained in part by the merchants, farmers and citizens generally, have nevertheless, prosecuted their work, and in many instances with great energy and vigor. Being largely indebted for work previously done, without any possible present means of discharging their numerous creditors, and yet at the same time, having large balances due them from the Commonwealth, which they were then confident of soon receiving, they believed that their best interests required them to proceed to immediate completion. By this means they would avoid the *sacrifice* which a suspension of their operations would inevitably bring. They had, too, the strongest reason to place implicit reliance in the plighted faith of the State, from the fact, that all attempts to pass a law compelling a suspension of work on the Erie extension had signally failed, even in a legislative body where the majority did not appear to be particularly well disposed towards this portion of the public improvements.

Notwithstanding this implied guarantee of future payment, some of the contractors, upon works of a peculiar character, requiring a large *cash* expenditure, deemed it prudent not to proceed. The aqueducts over Elk and Walnut creeks, and the outlet locks at Erie, were thus situated; and in consequence, no work has been done upon them since spring. Had a small appropriation been made for these works, the whole line would have been in such a state of forwardness, as to have insured its opening early in the season of 1842. Under present circumstances, it must necessarily be procrastinated one year longer. And should the Legislature, at the ensuing session, fail to

make provision for prosecuting the work, especially upon the aqueducts and outlet locks, the Erie extension cannot be rendered navigable before 1844; whereas, by an early appropriation this winter, the contractors will be prepared to enter immediately into such arrangements as will lead to the completion of the line at the earliest possible period.

Justice to the citizens of North-western Pennsylvania, whose interests are deeply and vitally involved in this great undertaking—the honor of the Commonwealth, and every principle of sound economy, demands its immediate completion. Each year's procrastination adds greatly to its original cost, in the interest of the investment and the repairs necessary to prevent the works from going to ruin. This latter item, on the Shenango line alone, already amounts to $40,000, and constitutes the prime cause of the annually increasing estimates of the line.

In round numbers, the State has already invested in the Erie Extension, (the amount of work done) $2,920,000. To this may, with propriety, be added $620,000, about one-half of the cost of the Beaver and French creek divisions, which, without the main line, would, in a great measure, be unproductive. Pennsylvania has, then, a capital already invested of more than *three and a-half millions*, which must remain idle unless this line be completed. The interest of this sum at *five* per cent, is $177,000 *per annum*. Now, upon the very reasonable calculation that the tolls at some future period, will pay five per cent. upon the whole cost of the improvement—and it matters not, in this view of the question, how distant the day may be—is it not clear that the State will absolutely *lose* this amount during each and every year, that the completion of the canal is deferred? This is an item independent of damages, decay, and destruction, and one which cannot be avoided—save by an alternative to which no Pennsylvanian will ever consent. The faith of the State is already pledged, and will assuredly be held sacred. The annual cost of repairing the injuries that an unfinished canal must inevitably sustain, will, at a moderate estimate, amount to *six* per cent. per annum during the first few years, and the unfinished works will, in all probability, if abandoned even for a short period, cost twenty, or, perhaps, thirty per cent. more; so that, in *two years*, the actual *loss* to the State would exceed the whole amount now required to complete the line.

This, gentlemen, is not an exaggerated view of the case. It is a plain statement of *facts*.

On the other hand, what is to be gained by immediate completion?

Can any one who has viewed the vast and almost boundless extent of country encompassing our noble chain of Lakes, and watched the rapid and unexampled growth of the intelligent and enterprizing population now thronging to this magnificent basin, entertain the belief that the *present* means of intercommunication with the Atlantic seaboard, will be adequate to the transportation of the immense production of this region, twenty years hence? The wonderful accumula-

tion of business upon the Erie canal, in New York, and the Welland canal, in Canada, during the last few years, proves most conclusively the contrary. It shows, clearly and practically, that the capabilities of this great North-western world are developing themselves in a greater ratio than the artificial improvements destined to form their grand out-lets. New York, having enjoyed this trade from its infancy, in 1825, is fully alive to its importance; and she is making herculean exertions to secure as large a proportion as possible for her commercial emporium. For this purpose she is expending twenty millions in the *enlargement* of the Erie canal—ten or twelve millions upon the Albany and Buffalo railroads, and twelve millions upon the New York and Erie railroad; tapping the Lake half way between Buffalo and the harbor of Erie:—Upwards of *forty millions*, over and above the first outlay upon the Grand canal, to obtain a stronger hold upon the *trade of the Lakes*. Will Pennsylvania *hesitate*, for the paltry sum of *half a million*, to grasp her rightful share of the golden prize? When the New York canal first went into operation, "in 1825, there was but one steamboat, of 350 tons, and thirty or forty small craft on the American side of the upper Lakes," and the tonnage was in all about 2,500 tons. In 1831, there were eleven steamboats and one hundred other vessels, the aggregate tonnage amounting to 6,582 tons. In 1836, there were forty-five steamboats, and two hundred and eleven vessels, in all 24,047 tons. And in 1839, there were sixty-one steamboats (17,324 tons,) and two hundred and twenty-five vessels, (17,799 tons,) in all 35,123 tons, and the value of the shipping at that time, was $2,400,600. The tonnage on the Welland canal, which connects Lake Erie with Lake Ontario, was, in 1834, 37,914 tons, whilst in 1838, it had increased to 95,397 tons.

The enormous increase of tolls on the New York Erie canal, is familiar to all. In the report of the Canal Board of 1840, they estimate the increase for *seven* years at 49 per cent., or 7 per cent. annually; or 75 per cent. for *ten* years, or 7½ per cent. annually, which carries the revenue in 1846, to $2,632,672. The *actual* increase in 1840 was above 9 per cent. Thus proving that within a very brief period the *annual revenue* on the Erie canal will exceed the *total cost* of the Erie extension.

The canals and railroads of Ohio, Michigan, Indiana, Illinois, and the vast region beyond, which are springing up in every direction, are but so many tributaries to the trade of these inland seas, and human foresight can scarcely compass the extent it will ultimately reach. Enough is already known to satisfy the most sceptical that if the Erie extension can secure but a fourth part, it will in a few years pay a handsome interest on its cost.

The beauty, capacity and safety of Erie harbor, point to it as the most favored port on the lakes, and so soon as the government works are finished, it will justly claim to be the most convenient. From its position on the lake, it will always, as heretofore, be open for navigation from three to six weeks earlier than the harbor of Buffalo, and close at a later period in the fall; and with a judicious system of tolls,

and the enterprise of our Philadelphia merchants, an immense trade may be secured through this Pennsylvania route.

But the completion of the Erie extension is destined to form a new era in lake navigation, and to open a source of wealth to our Commonwealth which has hitherto lain dormant, by creating a market for the *coal* of the Shenango valley. These extensive fields contain an inexhaustible supply of this valuable article, of a most superior quality, and peculiarly adapted to steam purposes—being free from sulphur, and throwing out a strong, clear flame. That it will eventually become the universal fuel of the lake steamers there can scarcely be a question. It will also be extensively used in the cities and towns bordering on the lake, and for some distance along the Erie and Welland canals. In all human probability, this article alone will ultimately create a business on the canal sufficient to pay five per cent. on the whole investment.

By a reference to my report of this date, on the French creek division, the Board will perceive that it will require the sum of $79,437 46 to put the feeder line in order; $50,000 of which could be advantageously expended during the current year. This being an indispensable appendage to the main line, it is presumed that the Legislature will make appropriations simultaneously upon both.

The present total estimated cost of the Erie extension, it will be observed, exceeds that of former years. A considerable portion of the excess arises from the repairs and damages, and the additional cost of superintendence, engineering, and miscellaneous and contingent expenses, occasioned by procrastinating the period of its completion; and until sufficient appropriations be made, to enable your engineer to determine a definite time for the consummation of this desirable event, it will be difficult to assign the exact limits of its cost.

I learn from Mr. Curtis, supervisor in charge of the forty-three miles *finished*, that the total cost of repairs during the year, has been $4,000 37½. The navigation on that part of the line, commenced April 6th, and was only interrupted in two instances—from August 8th to 19th, for the purpose of making some repairs, during the dull season—and from September 10th to 14th, to repair a *breach* caused by some malicious hand. The trade on this branch of the public works, although of great advantage to the district through which it passes, is necessarily of minor importance as compared with the great object for which our State has so long been contending—the trade of the lakes; and no hope whatever is held out that it can ever be profitable until the great chain of communication is finished.

The Engineer corps now in regular service upon the State works under my charge, consists of the following gentlemen, viz:

Milton Courtright, *Principal Assistant Engineer.*

Andrew Porter, *Assistant Engineer.*

Robert W. Clarke, *Assistant Engineer.*

Daniel Garber, *Assistant Engineer.*

It affords me much gratification to state, that they continue to perform their arduous and responsible duties, in a highly satisfactory manner.

Respectfully submitted,

W. MILNOR ROBERTS,

Principal Engineer, Erie Extension.

REPORT

OF

J. MITCHELL,

Superintendent of the Erie Extension.

CANAL OFFICE, ERIE,
November 30, 1841.

To the President and Board of Canal Commissioners:

GENTLEMEN:—In obedience to instructions received from Thomas L. Wilson, Secretary to the Board, dated the 25th of October, 1841, I have the honor to report the transactions on the Conneaut and Shenango lines of the Erie extension, for the fiscal year commencing on 1st of November, 1840, and ending the 30th November, 1841, embracing a period of thirteen months.

To my superintendence of the Conneaut line has been added that of the Shenango, by a resolution of the Board, dated 7th May, 1841, the whole superintendency of the Erie extension there by devolving on me, which I answered on the 1st of June, 1841.

No work having been let, or re-let, or abandoned on the Erie extension since the last annual reports made on the 31st of October, 1840, the contractors and the work let, are the same as at that time reported, and the detailed statements of the Engineer, showing the progress of the work, and supplying every information which may be desired for any needful purpose, I have thought it not necessary to repeat the same by tables from this office, but respectfully refer the Board for any information required in detail, to that source.

The whole operations on the lines under my charge, in a condensed, and I flatter myself improved form, are very fully set forth in the accompanying *general statements*, numbered from 1 to 3, and affords

such necessary information, either separately as—"on the Conneaut line;" or—"on the Shenango line;" or united as—"the Erie extension," as will enable the Board or the Legislature at a glance to arrive at whatever information they may desire in regard to the operations on these lines of the public improvements, either fiscally or otherwise. In these statements every object of disbursement or expenditure is embraced; and it appears from the same that it will only require to complete the Erie extension, of work to be done after the 1st of January, 1842, the sum of $524,642 46¼; of which sum, will be chargable to the Conneaut line $489,892 76½, and the Shenango line $34,749 70.

The amount due for work done, over and above appropriations on the Erie extension, to the 1st of May, 1841, was $10,186 92¾—to 1st December, 1841, $241,342 47¾, and on the 1st of January, 1842, is estimated at $252,942 47⅝, to which sums must be added the balance of appropriation of 4th of May, 1841, not yet received or made available of $332,963 76, to show the sum necessary to pay for work done up to these several periods.

The Board will perceive that the appropriation to the Shenango line, made in 1841, of $250,011 83, exceeded the amount of work estimated as due "*on contracts*," up to the 1st of May, 1841, about $70,000 00, and the Act provides nothing for the payment of debts due other than "*on contracts*," which sum, if realized, would revert back to the State and go into the fund for the payment of the interest on the public debt. To bring the statements and calculations here made correct, it will require that all the general and special appropriations made to the line, shall be made use of for the payment of debts due on the same, whether on "*contracts* for work done" or otherwise, and that all appropriations made to either line of the Erie extension, will be made available towards the completion of the whole, as in fact there is no difference between the Conneaut and Shenango lines, except in the name—they both forming one continuous line of canal, under the general caption of the Erie extension. It is therefore necessary that legislative provision should be made for the above object, and in order to complete the whole line, that the restriction imposed by the Act of 4th May, 1841, prohibiting "entering into any new contracts for any work upon the unfinished lines of the public improvements, whether for abandoned sections or otherwise," should be repealed.

The sufferings which the contractors have heretofore endured for want of the means due them from the State to pay their laborers and for other debts incurred in the prosecution of their work, has gradually extended to all classes of citizens in the vicinity of the work, and the liberal aid and credit given the contractors by the agricultural and mercantile interests, have involved them equally with the contractors in such pecuniary distress as to call loudly for prompt and speedy relief.

The advantages resulting from the completion of this line of canal

must be obvious to every one. The inexhaustible coal field through which the canal passes, extends from the mouth of Beaver river to near the Pymatuning Swamp, a distance of eighty-seven miles, the quality of which has been tested, and it being free from sulphur is found to be superior for many purposes to the bituminous coal of Pittsburg, and particularly for the use of steam engines. That this article, which is now apparently valueless, will become the source of immense wealth to the people of Pennsylvania bordering on the State of Ohio, when an outlet to the lake is afforded, cannot be doubted by any person of common observation and intelligence. Its demand can only be limited by the capacity of the canal through which it must pass to market. There are but two points upon the borders of Lake Erie at which this article can be furnished, viz: Cleveland in Ohio and Erie in Pennsylvania; the latter place in point of location has decidedly the advantage, it being ninety miles nearer that region of country which will afford the demand; besides the capacity of the Ohio canal will in a very few years be not more than sufficient to transport the agricultural productions which will pass upon it, and which are annually augmenting.

There are at this time sixty steamboats plying upon Lake Erie, which use, in one season of navigation, one hundred and forty-four thousand three hundred and thirty-six cords of wood, which costs $1 62½ per cord, making $234,546 00. These steamboats alone will consume one hundred thousand tons of coal during each season, more than one-half of which would be furnished at Erie at the present time, and without further facilities afforded in Ohio, must greatly increase. The further demand for this article, embraces the county of Erie, Western New York, and the Canadas from Long Point to Montreal. Vessels lading at Erie will pass out through the Welland canal, when enlarged as now commenced, with three hundred and fifty tons each into Lake Ontario, and furnish the whole north with cheap and cheerful fires from Pennsylvania coal. Those persons who have watched the increased consumption of this article in Eastern Pennsylvania, will need no further recommendation of the value of the Erie extension.

The faith of the State having long ago been solemnly pledged to the completion of this work, the citizens of North-western Pennsylvania have been looking anxiously to a period when the Legislature would make an appropriation adequate to the object. The interest of the Commonwealth—justice to her citizens generally, and to her contractors especially, alike demands the speedy accomplishment of a work requiring so little to finish, and which has already cost about three and one-half millions of dollars, (including the Beaver division,) the utility and availableness of which, is comparatively nothing until its final completion to the lakes; and the annual interest on which sum remains a heavy and enduring charge on the Treasury of the Commonwealth, which can only be relieved by the income which would be derived from its completion.

The whole of the Erie extension, including French creek feeder, can be put into operation for $100,000 less than is designated—provided lock-houses, &c., &c., are left to be provided for by future legislation.

Respectfully submitted,

J. MITCHELL, *Superintendent.*

Showing the amount of monies received and expended on the Conneaut and Shenango Lines of the Eri
received —Total amount of Appropriations received and expended on the Erie Extension—Total an
the Conneaut and Shenango Lines of the Erie Extension, over and above former appropriations—T
provided to complete the same: To which is added the cost of completing the repairs on the Fr
can be put into successful operation.

ERIE EXTENSION

No. of Statements.	1	2	3	4	
On the	Amount of Appropriations received and paid out.	Amount of Appropriation not yet received.	Whole am't. of Appropriations made on both Lines.	Amount Appropriation 4th May, 1841, rec'd. and paid out.	A tio ye
Conneaut Line,	$ 810,729 00	$ 332,963 76	$ 2,678,064 54	$ 106,333 09¾	
Shenango line,	1,534,371 78			72,101 02¼	
Totals on Erie Extension,	2,345,100 78	$ 332,963 76	$ 2,678,064 54	$ 178,434 12	
Add amount of Appropriation not yet received,	332,963 76			Add amount of ap	
Makes whole amount of Appropriation,	2,678,064 54			Funds required to complete Co	
Add amount required to complete,	777,584 94			Add repa	
Equals whole estimated cost of Erie Extension,	$3,455,649 48			Total amount required to put in operation, the wh	

NOTE.—The total of Nos. 1 and 2	equals	No. 3,	$ 2,678 064 54
Nos. 3 and 7	equals	No. 8,	3,455,649 48
No. 2	equals	No. 5,	332,963 76
Nos. 4 and 5	equals	No. 6,	511,397 88
Nos. 1, 2 and 7	equals	No. 8,	3,455,649 54

Respectfully s

J. MI

Canal Office, Erie, November 30, 1841.

Showing the amount due for work done on the Conneaut and Shenango Lines of the Erie Extension t
due on former Appropriations is received and paid.—The amount of work done during the fiscal
vember, 1841, inclusive.—The total amount of work done to the 1st of May, 1841.—The total a
1841.—The total estimated amount of work done to the 1st of January, 1842.—The estimated a
January, 1842, to complete the Erie Extension.—The amount due on the Erie Extension at the sev
and 1st of January, over and above appropriations already made or authorized by law.—Also, the a
several periods above enumerated.

ERIE EXTENSION.

No. of Statements.	9	10	11	
On the	Estimated amount due for work done to 1st of January, 1842, after balance due on former Appropriations is received and paid.	Amount of work done during fiscal year, from 31st October, 1840, to 30th November, 1841—13 months.	Whole amount of work done to 1st of May, 1841.	Whole am done to cember
Conneaut Line,	250,442 47¾	350,595 15	1,032,833 39¾	1,
Shenango Line,	2,500 00	203,436 51½	1,655,418 17	1,
Total estimated cost,	252,942 47¾	554,031 66½	2,688,251 46¾	2,
Deduct all approriations made to the Lines,			2,678,064 54	2,
Leaves due for work done at the several dates, over and above appropriations already made,			10,186 92¾	
To which add, balance of appropriation not yet received,			332,963 76	
Leaves due and unpaid at the several periods for work done,			343,150 68¾	

To amount of work to be done 1st January, 1842, add amount of work to be done necessary to

Makes amount of funds required to complete the Erie Ex

Add estimated amount of w

Makes whole est

Respectfully submitted,

J. MIT

Canal Office, Erie, November 30, 1841.

REPORT

OF

WILLIAM B. FOSTER, Jr.,

Principal Engineer, North Branch Extension.

To the Board of Canal Commissioners of Pennsylvania:

GENTLEMEN:—In addition to the accompanying tabular statements, which contain information in detail, respecting the North Branch Extension of the Pennsylvania Canal, I have the honor to submit the following report:

At the date of my last annual communication to the Board, the fund appropriated towards the construction of this work was exhausted, and notice given to that effect to the contractors, notwithstanding which the work was prosecuted with commendable energy during the succeeding winter and spring.

As soon as practicable after the appropriation made by the Act of Assembly of the fourth of May last, the requisite measurements and estimates were taken, and as no provision was made by that act for work during the current year, a large proportion of the contractors discontinued operations upon their jobs. Upon the two dams some work, indispensable to their safety and security, was done during the summer, and, in several instances, where the contractors had considerable investments in teams, provisions, tools, and other fixtures, which could only be disposed of at the sacrifice of their pecuniary interests, they continued to progress with their work until near the close of the fiscal year. In this way several sections have been completed during the season, leaving, however, only four jobs at present in progress on the entire line.

The following brief description of the work, taken in connexion with the tabular statements before referred to, will exhibit it as it stands at the close of the fiscal year, ending this day.

On the Tioga Line, thirty sections, aggregate length nineteen miles, and two hundred and eighty-eight rods; and of the Tunkhannock

Line, thirty-two sections, aggregate length twelve miles, and one hundred and ninety-two rods; giving a total of thirty-two and a-half miles, are completed.

At the close of the fiscal year, ending October thirty-first, eighteen hundred and forty, Dam No. 1 was nearly finished; it has, in connexion with the schute, been completed during the past summer, with considerable additional crib-work, and repairs to the outer wall of the schute, all of which additions and repairs the unusual freshet of March last demonstrated to be absolutely necessary to its security and permanency. The dam at this place (No. 2,) was nearly completed according to the original plan, when the flood of March last occurred, and there has been done during the past summer work to the value of twenty-five hundred and thirty dollars, in order the more effectually to protect and secure that previously done. In my report to the Board, of the first of April last, in relation to this dam, an estimate was submitted of twenty-one thousand two hundred and thirty-eight dollars, as necessary to place the works connected with, and adjacent to it, in as good condition as before the damage occurred to it; but I at that time suggested the impropriety of completing it upon the original plan, and would now respectfully reiterate that opinion. That plan contemplated a weir of only seven hundred and fifty-five feet between the schute wall on the west side, and the abutment on the east side, or including the schute, about eight hundred feet between the abutments.

The incapacity of a dam of this length to withstand and vent the extraordinary floods of the Susquehanna, without materially endangering the works connected with it, as well as the Towanda bridge, and doing incalculable injury to private property above it, was clearly demonstrated by the freshet of the 27th March last; and I would respectfully refer the Board to my report of the 1st of April, 1841, for a more detailed description of its effects upon the work in question.

With this view of the subject I have inserted the sum of sixty-seven thousand two hundred dollars in the total estimated cost of the line, for extending this dam about six hundred feet—giving a total overfall of between thirteen and fourteen hundred feet, and for repairing and constructing the works connected with and adjacent to it.

At the aqueduct No. 1, little has been done since the date of my last annual report; at No 2, one abutment is now to the proper height for receiving the trunk timbers, and one pier to nearly the same height, as also a large portion of the timber for the superstructure, and a small quantity of stone delivered; at No. 3, one abutment is fifteen feet, the other ten feet, and one pier about six feet above foundations, respectively, and a quantity of stone delivered. No progress has yet been made at this work in the delivery or procuring of timber for the superstructure.

In addition to the bridge over the Susquehanna at Towanda, a road bridge over Wysox creek, in place of one destroyed in the construction of the canal and aqueduct, a road bridge over Welles' mill-race, there are forty-eight public and farm (canal) bridges completed on the Tioga line. Of the culverts, two of four feet, three of six feet, two

of eight feet, two of ten feet, and one of twenty feet chord, respectively, are completed.

Locks Nos. 4, 11 and 13, are completed; guard-lock No. 1, as regards the masonry, remains the same as at the date of my last annual report; there has, however, been considerable work done during the year, in preparing the materials necessary for its completion. A small amount of work has been done at each of the locks Nos. 6, 7 and 8. At No. 9, about one-half of the masonry is laid, and a quantity of materials delivered. At No. 10 the timber and plank foundation has been laid, and a small portion of the stone delivered. The remaining locks upon the line are in the same condition as at the date of my last annual report.

Of the waste-weirs under contract, four are completed, and some progress made with all the others. One lock house is completed, and some progress made in procuring and delivering materials for two others.

For the fencing, roads, and sundry smaller items of work, reference may be made to the accompanying tabular statements:

The following is a summary from the tabular statements before referred to:

Value of work done on the Tioga line during the fiscal year, ending November 30, 1841,		$128,281 28
Value of work done on the Tunkhannock line during the fiscal year, ending Novemder 30, 1841,		278,356 29
Value of work done upon all the line during the fiscal year, ending November 30, 1841,		406,637 57
Value of work done prior to 1st November, 1840. Tioga line,	$1,093,729 91	
Value of work done prior to 1st November, 1840. Tunkhannock line,	847,908 90	
		$1,941,638 81
Value of work done on all the line up to November 30, 1841,		$2,348,276 38
Add the estimated cost of work remaining to be done on the Tioga line as far as under contract,	$282,856 08	
Add extension to the State line by the Chemung,	115,700 00	
Add estimated cost of work remaining to be done on Tunkhannock line,	1,015,559 95	
		$1,414,116 03
Total estimated cost of the North Branch Extension,		$3,762,392 41

The sum of one hundred and eighty-two thousand, two hundred and forty-four dollars has been estimated in the former reports upon this line as necessary to construct the canal from the village of Athens

to the State line by the Susquehanna, and that sum will be required whenever it is deemed proper to extend the canal by that route, or as soon as New York shall authorize the extension of her Shenango canal from Binghamton, to connect with the Pennsylvania Improvements.

In the foregoing estimate a sum is inserted sufficient to complete the connection at the State line by the Chemung route, and which will leave a link of about seventeen miles to be made by the State of New York, to connect our improvements with the Chemung Canal at Elmira, in that State. In addition to the connection to be formed with the Chemung and Shenango canals and through them with the main Erie canal of New York, we shall have the advantage of the New York and Erie railroad passing within a few rods of our State line, and penetrating portions of that State not accessible by water communication. A large force is now employed upon the Susquehanna and Western divisions of that great work, and from the progress already made, and the zeal and energy manifested by those in charge of it, there is little doubt of the completion of those divisions as soon as it would now be practicable to complete the North Branch Extension; thus affording immediate means of transportation for the products of our mines to a profitable market.

Taking into consideration the facts, that work to the value of nearly two and a-half millions of dollars has already been done; that the work remaining will cost less than one and a-half millions; that the interest upon the amount already expended must be provided for from other sources so long as the work remains unfinished; the inconvenience to the citizens residing along the line, whose farms are cut up and thrown open; the injury sustained every year by a work in a languishing and unfinished condition, particularly to the structures composed in part of timber; the certainty of a liberal return in tolls as soon as this canal shall be fairly brought into use, it is certainly the dictate of sound economy, as well as but justice to northern Pennsylvania that measures should be adopted for the speedy completion of the North Branch Extension of the Pennsylvania Canal.

Respectfully submitted,

WILLIAM B. FOSTER, Jr.,

Principal Engineer N. B. Extension Pa. Canal.

Towanda, *November* 30, 1841.

REPORT

OF

WILLIAM E. MORRIS,

Engineer Reservoirs.

ENGINEER'S OFFICE,
Hollidaysburg, Nov. 30, 1841.

RESERVOIRS.

The Western Reservoir, intended to supply Western Division of the Pennsylvania Canal with water, is situated on the South fork of the Little Conemaugh, about ten miles from Johnstown. The water to feed the canal, will pass down the natural bed of the stream, and be taken into the basin at Johnstown.

The depth of water in the dam, is	62 feet.
Area of land flooded,	420 acres.
Content of pool in cubic feet,	480 millions.
Deducting two feet in depth from the top for evaporation, will leave the available water in cubic feet,	450 millions.

The estimated quantity of water necessary for the transportation on the canal, of an amount of tonnage equal to the present capacity of the Portage Railway, viz:—2,500 tons per day, is about two millions of cubic feet per day. This whole quantity, without any allowance for the natural flow of the streams, can be drawn from the reservoir for more than *six months*, without any additional supply from rains. It is then clear, that this reservoir will be amply sufficient for every possible demand upon it. If to this be added, that the Portage Railway has never, for one month, even during the most busy season, averaged 1,000 tons per day, all doubts must vanish as to the sufficiency of the supply furnished by this reservoir.

Since last fall, the contractors have continued steadily to push on the work at the dam, though from the smallness of the appropriation,

with a moderate force. The sluice walls are raised sufficiently high for the reception of the pipes. Some difficulty has been encountered in testing these pipes, with a pressure equal to 300 feet head of water; that difficulty has been overcome, however, and each range of pipes, about 80 feet in length, has been subjected to this severe test, and in every case the tightness of the joints and the soundness of the castings proved their fitness for the work.

The importance of making a perfectly secure job of the sluice, and the impossibility of remedying any defect after the work is completed, and the fatal consequences resulting from a leak in these pipes, are sufficient to warrant any additional expense and labour, to render the work as perfect as possible. The stop-cocks (ten of which are required at each reservoir) have been ordered from the foundry of Mr. Weeks, at Lewistown—those for the upper end of pipes (five in number) are completed, and will be put to their places in a few days.

The clearing is completed, with the exception of a few acres, which can be done in a short time, after an appropriation shall be made.

The contractors for furnishing the wrought and cast iron have nearly completed their contact: the castings and a portion of the wrought iron are delivered, and the remainder of the wrought iron is about ready for delivery.

The estimated cost of *work done* at contract prices is:

Work done at dam, - - -	$42,000
" " at clearing, - - -	26,000
Cast and wrought iron, - - -	7,000
Cement manufactured at Johnstown, - -	2,200
Stop-cocks and lead for joints of pipe, and laying and testing pipes,	2,800
Total,	$80,000

If funds are early provided by the Commonwealth for this work, it can be completed during the summer of 1842, and may be so far advanced early in the spring, as to furnish to the canal a supply of water during the dry months.

The Eastern Reservoir, intended to furnish water at dry seasons for the Juniata division of the canal, is located on South Branch of the Juniata river, about one mile and a-quarter from Hollidaysburg. The feed water will be conducted to the basin at Hollidaysburg, by "feeder," constructed at the same time as the canal to bring in the water of the South Branch.

The depth of water at the dam is	28 feet.
The area of land flooded,	450 acres.
Available content of pool,	320 millions

of cubic feet; allowing two millions of cubic feet per day to feed the canal. As in the former calculation, this pool will furnish a supply, for *more than five months*, unaided by rains, or the natural flow of the

streams during the whole of that time; and together with the water furnished by the streams in the driest time, the pool will supply the demand for more than six months. Add to this quantity, the rains that fall every season, by which the reservoir will be replenished; and let it be borne in mind, that our dryest seasons are not more than half of six months, and the conclusion is inevitable, that the supply will be more than sufficient.

About one-half the work at the dam is completed—the cast and wrought iron principally prepared for the work—the clearing, with the exception of a part of lot No. 1, is not yet commenced. The clearing, however, is light, and can soon be done.

The foundations, below water of the aqueduct across South Fork, have also been laid; for the purpose of affording an opportunity next spring of going on with the work, without waiting for low water, as it is impossible to put in these foundations while the streams are full, which is always the case until June.

The estimated cost of work done at Eastern reservoir, is as follows, viz:

Work at dam,	$44,000 00
Do. at clearing,	250 00
Furnishing cast and wrought iron,	5,000 00
Examinations made for rock,	1,600 00
Roman cement,	350 00
Lead,	800 00
Stop-cocks,	1,000 00
Total amount of work done and materials furnished,	$53,000 00

The completion of this work, like the Western reservoir, depends upon the sufficiency of appropriations made by the Legislature, and the time when the money is ready for disbursement.

The nature of these contracts is such, that operations upon them are chiefly confined to the summer months. If, therefore, no appropriations be made until near the close of the legislative session, and some time thereafter elapses before funds are realized, much of the season is lost before the contractor is warranted in making arrangements for actively urging the work. An early and sufficient appropriation would secure the completion of this job next summer, and render it partially useful in feeding the canal.

Nothing need now be said to prove the necessity of the reservoirs, or the importance to the canal of a constant and abundant supply of water. Every year, with perhaps one exception since 1834, there has been a deficiency of water, either upon the Conemaugh or Juniata, and generally upon both. The experience of this season is similar to the last. Low water prevailed for nearly three months upon both sides of the mountain. Especial care has been taken for two years past, to turn into the canal all the water furnished by the streams used as feeders. The feeder dams were made *perfectly tight*, the channels of the streams below them left dry, and yet the defi-

ciency has been great: completely establishing the fact, no longer denied by any who have an opportunity of seeing for themselves, that the *supply is inadequate.*

The water flowing into the basin at Hollidaysburg and Johnstown, is almost entirely brought from mountain streams; these are supplied by surface or land springs; the face of the country descending rapidly to the vallies; the soil and underlying strata are nearly impervious to water. With this state of facts, it cannot possibly be otherwise than that the streams in the vicinity of the Allegheny mountain should fail when long continued seasons of dry weather occur. These facts also account for the sudden rise and fall of the streams, and the vast quantity of water that is hurried past the head of the canal in a few hours after the occurrence of a heavy rain. And at the same time that they prove the necessity of reservoirs, they show that they can be always filled with water before the commencement of the dry season, which will be reserved for a supply when the streams shall have failed.

The uncertainty of the time in which goods can be delivered during the summer months, and the increased cost of transportation when our canals are but half filled with water, stand prominent among the causes that render the improvements of Pennsylvania, though the shortest route to the west, one of the least popular and *most expensive.* But the evils resulting from low water have been too frequently detailed, and are too evident to be again enumerated.

Estimated cost of Western reservoir,	$188,000 00
Do. " " Eastern reservoir,	100,000 00
Total estimated cost of reservoirs, exclusive of engineering, and office expenses, damages, &c.,	$288,000 00
Amount of former appropriations,	$120,000 00
Amount necessary to complete,	$168,000 00

Which should be appropriated during the ensuing session of the Legislature.

An agreement has been made with Mr. M'Cune for damages sustained by him at Eastern reservoir. The claims of all others whose lands will be flooded should be settled as early as practicable. The probable amount for unsettled claims is $13,000 00.

Respectfully submitted.

WM. C. MORRIS, *Engineer.*